FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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Chemical Safety 'Amazingly Good'; Study Need Cited

By LAWRENCE A. LONG
Feedstuffs Staff

BELTSVILLE, MD.—The record of safety in the use of agricultural chemicals "based on our limited knowledge is amazingly good," but the use of existing chemicals is handicapped and the use of many new ones is deterred by a lack of adequate information, asserted a U.S. Department of Agriculture research official during the Agricultural Chemicals Symposium conducted here April 27-29.

"I know of no proven case of injury to human health from use of such chemicals according to procedures permitted by government regulation," said Dr. T. C. Byerly, deputy administrator, Agricultural Research Service. "And instances of injury to crops, livestock and wildlife are small rela-

(Turn to CHEMICAL SAFETY, page 93)

Delaware Firm to Build New Plant

MILLSBORO, DEL. — Townsends, Inc., described as one of the world's largest broiler firms, announced that it will build a $500,000 electronically-automated feed mill on its farm east of Millsboro.

Former U.S. Senator John G. Townsend, Jr., president, said that when the company first went into feed production in June, 1946, it was only able to produce 50 tons a month. "This new mill," he said, "will enable us to do that much in one hour."

Preston C. Townsend, vice president, said construction of the feed mill at this time is an expression of faith in the future of the Delmarva poultry industry and he has full con-

(Turn to DELAWARE, page 93)

To Present Information On FDA Compliance

KANSAS CITY — Presentation of detailed information on plant handling requirements for compliance with Food and Drug Administration regulations will be one of the principal features of the 1960 Feed Production School, to be held Sept. 21-23 in Kansas City.

Some of the plans for and work being done on this special project were outlined this week by Lloyd Larson, president of Feed Production School, Inc., sponsor of the annual school.

With the current step-up in FDA inspection and enforcement activities in the feed manufacturing industry, this part of the Production School program is expected to be of particular importance to all feed plant operators.

Officials said it is hoped that the information will help ease the many problems involved in complying with regulations in feed mills. A pictorial presentation will be made on the various aspects of how to comply. The presentation will cover the regulations, forms required and the various

(Turn to COMPLIANCE, page 8)

Trade Withdraws from Storage Talks in Protest

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — The grain trade on April 29 broke off negotiations with the U.S. Department of Agriculture on terms of a new Uniform Grain Storage Agreement. The warehousemen said that they could not accept the USDA proposals for reduced handling and storage rates.

The 18-man trade committee said terms believed acceptable to the industry were rejected by USDA. "We have therefore concluded that the department will proceed by edict, leaving us no alternative except to withdraw in protest."

(See earlier report on grain storage in Capital Comment on page 8.)

On Friday morning, April 29, at the fifth meeting to negotiate a new UGSA with USDA, the 18 men representing the three segments of the grain warehousing industry withdrew from the negotiations.

"We cannot accept in good conscience the proposals put forward by

(Turn to GRAIN TRADE, page 93)

10 Feed Leaders Elected to AFMA Board of Directors

CHICAGO—Ten leaders of the feed manufacturing industry have been elected to the board of directors of American Feed Manufacturers Assn., according to W. T. Diamond, AFMA secretary.

Mr. Diamond announced the official results of balloting which took place during April among active members of the association in 48 states.

Eight of the 10 men are starting

(Turn to 10 LEADERS, page 93)

Ingredient Market Tilts to Downside

A continuing downtrend in formula feed sales in most parts of the nation has spread its bearish influence into the ingredient markets.

Across the board, almost without exception, ingredients sought lower price levels during the week ended April 26.

Soybean meal took a firmer stand after the close of the reporting period and regained the loss of about $1 ton. Meal has been too plentiful for current demand, and some processors are making substantial cuts in production.

Some attention was being paid to the fact that despite the increase of more than 80,000 tons in March production of soybean meal over February, there was a cut of 8,000 tons in the crushers' "on hand" at the end of March. And the March 31 processor stock figure was about 10,000 tons below the year-ago level. This tended to temper some of the bearish ideas held by some buyers.

Millfeed prices generally continued to sag in all markets during the

(Turn to INGREDIENTS, page 8)

California Convention

Group Hears Hints on How To Adjust to Trade Changes

LOS ANGELES, CAL. — Members of the California Hay, Grain & Feed Dealers Assn., attending their 36th annual convention here April 21-23 at the Ambassador Hotel, resolved to cooperate with the California Department of Agriculture in the continued policing of proper tagging of feeds, with particular emphasis on so-called special mixes where no tags or lists of ingredients accompany the delivery.

The conventioners resolved also that all purchasing of animal and fish proteins be standardized on a set minimum protein basis. Although this practice has been in operation in southern California, the membership expressed the opinion that their cooperation in the purchasing program would help to extend the practice throughout the state.

The California feed and grain men were challenged to meet the demands of changing times by streamlining their operations. Also discussed before them were complications of the

(Turn to CALIFORNIA, page 4)

Kansas Convention

Says 'Repressive Chemical Controls' Hurt Farmer Most

By MARTIN E. NEWELL
Feedstuffs Staff

WICHITA KANSAS—The farmer is the one who will suffer most from repressive controls of various chemicals by the Food and Drug Administration, E. G. Cherbonnier, feed advisor of the Grain & Feed Dealers National Assn., told the Kansas Grain & Feed Dealers Assn. at the annual convention here April 21-23.

Arbitrary and impractical decisions by FDA may cause feeds to become inefficient and may hamper control of disease, and this could be particularly harmful right now to the poultry industry, which is battling for existence on small margins, he said.

Mr. Cherbonnier urged feed and grain dealers to talk to their farmer customers and point out these dangers, so that farmers, themselves, may exert their influence on their own Congressmen this summer, when they are back home during the Congressional recess. Farm organizations are beginning to recognize these dangers, said the speaker in citing resolutions adopted by the American Farm Bureau Federation and the National Grange.

(Turn to KANSAS, page 93)

Chick Edema Factor Isolated

RAHWAY, N.J.—The specific cause of a "mystery disease" which cost poultry growers and feed suppliers an estimated $10 million in 1957-58 has been pinpointed by Merck research scientists after a two-year search, Merck & Co. reported this week.

The first outbreak of the disease in October, 1957, spurred the feed industry and other agencies into action. They traced the cause to certain lots

(Turn to EDEMA, page 93)

FEEDSTUFFS *Features This Week*

POULTRY NUTRITION—A summary of papers presented at the Informal Poultry Nutrition Conference is presented on **page 10.**

MODERNIZED MILL—Installation of new facilities has speeded service and increased customers for a Minnesota mill. **Page 18.**

CALCIUM INTAKE—Increasing calcium intake above presently accepted levels can improve egg quality, says a college scientist. **Page 26.**

PHOSPHORUS FOR SWINE—The necessity of supplementing swine diets with inorganic sources of phosphorus is discussed on **page 34.**

POULTRY FUTURE—The tying together of production and marketing in the poultry industry is stressed in an article on **page 46.**

NEW BULK FACILITY—A new installation for storage and loading out of bulk finished feed is described. **Page 54.**

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EDITORIAL STAFF—George L. Gates, Editor; Roger Berglund, Managing Editor; John Cipperly, Washington Correspondent; Emmet J. Hoffman, Merchandising Editor; James E. Sharon, James H. Ross, Fred E. Tunks, William A. Bentzin and Jim K. Rutter, Editorial Assistants.

WASHINGTON CORRESPONDENT—John Cipperly, 604 Hibbs Building, Washington, D. C., Telephone, Republic 7-8534.

ADVERTISING STAFF—Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Department Manager; Bruce A. Kirkpatrick, Advertising Production Manager; Leland C. Hubert, Assistant Advertising Production Manager; R. Dale Swenson, Promotion Manager.

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How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

The shine that the nation's feed manufacturing business seemed to be taking on early this week wore off as the week aged—and trade was dull again. The ingredient market is soft, and lower formula feed prices have followed. This trend appears to have kept feed dealers out of a buying mood. Just about everything that has anything to do with agriculture is moving slow this spring. The new crop season is late getting started. Rain has kept farmers out of their fields at critical times, and they are preoccupied with catching up. The uncertainty of market trends has developed a "wait-and-see" attitude among producers. Even if producers eventually see that they could wisely increase their layer flocks and pig herds, their decisions may come too late. It appears at present that pig and layer numbers will be greatly reduced from last year, so that even as chicks and pigs grow bigger their numbers will be far below those grown last year. And this, of course, will cut into formula feed consumption. In general, feed business in April was below that recorded in March and in April of last year. The index of wholesale feedstuff prices dropped to 77.3 during the week ended April 27. This index was 1.3 points below the previous week and 8.9 points under a year earlier. The feed grain index was 67.4 this week or only slightly below 67.5 a week ago and 1.7 points below a year ago. The hog-corn ratio, based on Chicago prices, was 13.4 this week compared with 13.5 last week and 12.6 the comparable week a year ago. (Feed markets in detail on pages 90-92.)

Northwest

For most feed manufacturers in this region, April's business "wasn't what it should have been" and current sales "aren't what they should be."

April was a fair-to-good month, but it fell short of meeting sales levels of the same month a year earlier. And May is expected to get underway in much the same manner as April expired—slower than anticipated.

Even though hog, beef cattle and egg prices are much improved over levels of some time ago, producers seem to assume an attitude of general buying apathy. Apparently the past has been so unkind to them they are taking conservative stands.

The feeding season in this region seems to be somewhat behind the usual timing. Market uncertainties have tended to get chick buying and pig farrowing off to a slow start.

Feed manufacturers are currently moving pig and turkey starter feeds fairly well, but beef cattle feed sales haven't been up to snuff. Chick starter feed sales are way down due to the big reduction in flocks. Even though numerous reports have substantiated indications that egg-type chick sales were off a third or more from last year, there was some thinking among feed men for some time that prospects for good egg prices this year would urge flock owners to make late bids for chicks. But, apparently, this has not been the case. Hatcheries this week reported that producers still are cancelling chick orders.

Feed dealers appear to be reluctant to extend themselves beyond hand-to-mouth feed orders. This could be attributed to a couple of factors: Weak ingredient prices have created a downtrend in manufactured feed prices, and dealers usually aren't in a buying mood in a down market. Some traders blame personal property tax evaluation time for some of the quietness. Dealers hesitate to take on supplies for which they may be taxed.

Southwest

Formula feed business continues to be at a disappointing level and most mills in the Southwest are experiencing difficulty in operating better than a slow five-day run.

Some trade sources reported some pickup in chick starter sales but total volume in this line is not heavy with placements off. Turkey starter feeds are moving well and volume of broiler feed is holding up exceptionally well.

Major ingredients have continued to decline in price again this week which will result in lower formula feed price lists this week. It is hoped that the lower prices coupled with seasonal expansion in hog and poultry lines will provide improved running time for mixers.

Northeast

Frequent rains have kept pastures soggy in this area and demand for dairy feeds has held up well. But the over-all sales volume of formula feeds continued in the same relatively low groove of recent weeks.

One large cooperative mill featured "special prices" on its dairy feeds and the action bolstered the average running time of mills.

Dairy feeds are still the sales leaders but egg mashes are creeping up on them and are likely to overtake them in a couple of weeks. Starting and growing feeds ranked next in volume, followed by broiler feeds.

Egg trends were somewhat mixed but the outlook is brighter because of reduced laying flocks. Broiler prices seemed to be heading lower and milk returns will taper off seasonally in May.

Corn showed signs of weakness during the week, as did oats and barley, but prices held unchanged. Feed wheat is practically unobtainable but it was thought users had enough on hand to last them until lake offerings become available at sharply lower prices.

Central States

By and large, the formula feed situation has many of the same aspects as were present a week ago. Volume of fresh business is not at all liberal, but was described as being fairly satisfactory.

With April drawn to a close, it is very apparent that the sales volume for the month suffered by comparison with its immediate predecessor.

Mixers have generally been operating on a five-day week basis and they all seem to be maintaining a fairly even balance between their day-to-day sales volume and manufacturing operations.

Farmers throughout the Midwest are currently up to their chins in spring field activities and corn planting is not too far distant. This is having its usual seasonal impact on

(Turn to MARKETS, page 95)

Two Directions

THERE ARE MANY REASONS why an industry—or an individual company—may appear to be heading in more than one direction at the same time. Such apparent contradictions may result from carefully weighed decisions that a goal can be approached in more than one way. Or they may occur when it is recognized that the number of uncertainties about the future dictate a calculated "hedge" in selecting more than one route to travel. Often, too, these situations develop from just plain confusion about facts and trends, with overtones of despair. Some feed industry developments that fall in the multiple-direction category have sprung from all of these.

The industry right now is watching from a front-row seat what might turn out to be one of the classic struggles of the times between divergent methods of reaching a goal. That goal is a healthy and prosperous poultry industry, and feed men have more than a small wager riding on the outcome —that is, which method produces the score. In reality, the feed industry isn't just in the stands; it is in the arena.

A CLEAR-CUT VIEW OF TWO dominant forces was presented in two Feedstuffs reports last week. One told of the opening of Jimmy Hoffa's Teamsters Union office in New Jersey to organize poultrymen. The union's announced goal: Better income for egg producers.

The other report told of the launching of an intensive effort by the Poultry and Egg National Board to straighten out some of the kinks in production and marketing of poultry products, particularly eggs. PENB's goal: Better income for egg producers.

MR. HOFFA HASN'T yet spelled out how he proposes to solve the poultryman's difficulties, although he has, not immodestly, declared that his mere conern with the problem is sufficient to arouse widespread interest in the poultry industry's problems. This is undoubtedly true. News of the move has been widely reported, and some newspapers have commented editorially on the Teamsters' invasion of farming.

It is possible, however, that Teamster economists have been doing some research outside of their usual realm of study—such as the outlook for egg prices later this year. Most of the forecasts indicate some substantial recovery can be expected. It could be a good year for Mr. Hoffa to try for a hero badge.

Mr. Hoffa's influence and his methods are nothing to joke about, however, and if poultrymen feel that the sort of controls and bargaining power he can provide are aimed at their long-term well-being, the poultry industry is on the dangerous edge of some revolutionary changes that will make the integration issue look like a game of tiddly-winks.

It is unfortunate that the choice of New Jersey poultrymen to head in the direction they are heading had to be influenced by despair over their outlook. It is doubly unfortunate if the established poultry organizations and all who deal with these poultrymen do not attempt to devise more reasonable ways to help them out of their difficulties.

LEADERSHIP OF THE KIND NEEDED is stirring within the PENB. The organization, in the words of R. M. Hendrickson, chairman of PENB's new products development committee, must recognize that product development and consumer education is "desperately urgent to avoid total disaster in the egg industry." The PENB's apparent determination to marshall as much industry ingenuity and strength as possible in its program to boost egg consumption should provide the sort of stimulation needed to find long-range solutions to poultry problems.

There are certainly some directions of choice for poultrymen. And those in associated industries, it is equally certain, should have no difficulty in recognizing where they can help steer their customers and themselves away from demands for strict government production controls or strong-arm bargaining methods.

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Moreover, there are many times when buying vitamins strictly on the basis of lowest-cost-per-pound is *false* economy. Cut-rate vitamin premixes are liable to deteriorate rapidly, or separate, leaving you with two alternatives: run the risk of underfortification or use up the savings by adding extra vitamins "to be on the safe side."

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FEED TECH COMMITTEE—The first meeting of the newly formed Feed Technology Advisory Committee was held recently in Kansas City. James C. North, president of Nutrena Mills, Inc., Minneapolis, was elected chairman, and Dr. John Shellenberger, head of the milling industries department at Kansas State University, was named secretary-treasurer. Future plans and needs of the feed tech program at K-State were discussed. Committee members are pictured here. Seated, left to right, Dr. Shellenberger; Dr. Harold Jones, extension director at K-State; Maurice Johnson, Professional Feeds; Dr. A. D. Weber, dean of the School of Agriculture, and Dr. C. Peairs Wilson, director, School of Agriculture. Standing, George Thomas, Prater Pulverizer Co.; Larry Alley, Pay Way Feed Mills; Mr. North; John Heimovics, Weitz-Hettelsater; Lloyd Larson, executive vice president, Midwest Feed Manufacturers Assn.; W. E. Glennon, president, American Feed Manufacturers Assn., and Dr. Glenn Beck, director, Agricultural Experiment Station.

Egg Prices Decline; Broilers Improve

NEW YORK—A downward trend in egg prices and a general improvement in live market conditions for broilers was reported by the U.S. Department of Agriculture this week.

The egg price trend was downward during the weekly period ended April 27; however, prices still remained above year earlier levels. The New York wholesale price for white large eggs was 36-39¢ a doz. as compared with 38½-41½¢ a week ago and 29-32½¢ for the same week in 1959. In Chicago, prices for mixed large were 33-33¾¢ a doz. off from 34-35¢ the previous week. The price paid at farms in Iowa for large eggs dropped from 28-34¢ the previous week to 27-33¢ this week. This price, however, was up from the 19-24¢ a year ago level.

A general improvement in live market conditions prevailed in most broiler-growing areas at the close of the week.

A 16¢ farm price level was well maintained in most southern producing areas, while paying prices ranged mostly 16½-17¢ in the Delmarva area.

PLANS SET FOR AFMA CONVENTION

CHICAGO — Plans are all set for the American Feed Manufacturers Assn. convention May 9-11 in Chicago, and persons who are planning to go but have not yet made reservations have been advised to get their reservations in right away. The convention will be held at the Conrad Hilton Hotel, and AFMA said this week that the big Hilton may be able to squeeze in a few more "late deciders." They should call Jack Loftus, reservations department, Conrad Hilton Hotel.

At least 2,300 persons are expected to attend the convention. General theme of the program will be feed business management. To be discussed will be such subjects as trade ethics and business practices, money management, labor relations, agricultural and industry trends, marketing the end product and government controls.

The speaking program May 10-11 will be preceded on May 9 by meetings of the AFMA directors, Nutrition Council, purchasing agents and other groups. Being held along with the AFMA convention is a meeting of the Association of American Feed Control Officials.

Hales & Hunter Co. Appoints Treasurer

CHICAGO — Jack F. Zeisler has been named treasurer of Hales & Hunter Co., Chicago, announced William H. Garvey, Jr., president.

Jack F. Zeisler

Mr. Zeisler previously was tax manager for Arthur Anderson & Co., public accountants. He is a graduate of Ohio University and received his Juris Doctor from DePaul University in 1952.

Mr. Garvey also announced the promotion of Thomas H. Kelley to the position of assistant to the president. Mr. Kelley will assume the broad responsibilities of personnel communications, administration, public relations and labor relations.

CALIFORNIA

(Continued from page 1)

proposed changes in grain storage and handling rates, the effect of feed additive restrictions imposed by new regulations, the proposed adoption of the hundredweight basis for grain trading throughout the U.S., the responsibilities of feed manufacturers in processing and labeling medicated feeds and the magnitude and growth of the feed industry in California.

Officers, Directors

Arthur H. DeRaad, DeRaad Warehouse, Lemoore, former vice president, was elected association president, succeeding Jack W. Flammer, Flammer Grain Co., Los Angeles. New vice president is T. D. Griffin, Bell Grain & Milling Co., Pomona.

Directors are: Mr. Flammer; W. F. Drum, Cargill, West Sacramento; William P. Mathews, Coast Grain Co., Norwalk; Fred Sterzing, Southwest Flaxseed Assn., Imperial; Paul Bimmerman, Sr., Quaker Oats Co., Los Angeles; Walter Kelley, California Cotton Oil Co., Los Angeles; Jack Vanella, Butte Feed & Warehouse Co., Chico; Arnold Wagner, Grange Co., Modesto, and Winslow Hall, Pacific Molasses Co., San Francisco.

Leo L. Johnson, Sacramento, continues as secretary-treasurer.

Different Customer

Grain and feed men are serving a different kind of customer today than they did 10-20 years ago, said Charles S. Force, partner, Little Brothers, Kalamazoo, Mich., and president, Grain & Feed Dealers National Assn. These customers—who have larger, more specialized operations, are better educated and demand result products with improved service—"offer us a real challenge," he remarked.

Mr. Force outlined the following guide for the feed man to use in his efforts to meet the challenge of changing times:

"1. A retail feed mixer and feed retailer should take a good look at their personnel and then build an organization that can properly meet the needs and opportunities in their market.

"2. Offer your customers proven result products, along with a program and added service for above average production.

"3. Make a profit on the merchandise and services you sell. A fair profit is what has made so many great firms and people in this country.

"4. Go cautiously on accounts receivable. We sell feed and give credit to dependable people, but when we have accounts 60-90 days old, we have gone out of the merchandising business and into the finance business. Finance companies and banks have 3-4% money, while feed men borrow at 6-7%.

"5. Maintain an outside selling program. More and more there is a need for good outside contacts on big customers by a well trained man. Do not depend on business to come to you. Advertising will help but it will not do the job.

"6. Be a part of your community. Operate your business so that you have the respect and confidence of farm customers in your trade area."

Mr. Force noted, "People in our business have found it necessary to streamline for greater efficiency, increase their capacity and add modern facilities. Customers demand help from farm trained people to give service and to help with production. While doing this we have been faced with higher taxes, higher labor costs and increased overhead in general."

He related that an official of an insurance company which insures many grain elevators predicted: "Within the next 10 years, 25% of the country elevators and retail feed dealers will go out of business because of high labor and overhead, high facility costs, high taxes and narrow margins."

Mr. Force qualified the insurance man's prediction by noting that in Michigan, for instance, grain and feed men are operating on about the same margin per ton or per bushel that they did 30 years ago. During this same period all costs have increased 3-4 times, but volume and labor-saving equipment has offset much of the extra cost. "Nevertheless, there exists a serious problem to our industry and in many instances it could be ruinous," Mr. Force remarked.

Regarding the fuss over rates for storing government grain, Mr. Force said, "All costs have gone up, yet country elevator men are expected to store grain under 1952 rates."

He talked about the effect of new regulations imposed by the Food and Drug Administration under the Delaney clause to the food additives amendment, and said the restrictions "can develop into a very serious condition for our business."

15% of National Total

William E. Warne, director, California State Department of Agriculture, said the 5,366,000 tons of processed feeds sold last year in California represented approximately 15% of the national total.

Mr. Warne urged support for the plan of the National Association of State Departments of Agriculture for the adoption of the hundredweight as the basic unit for trading in grains throughout the U.S.

He said he had requested and obtained a study of this matter by experts in weights and measures, field crops and marketing in his department, and it appears that no legislation would be necessary in California to permit the proposed change-over. "I am further informed," he said, "that California farmers, accustomed to thinking in terms of hundredweights, would welcome the change."

In California, pounds or tons are used in the sale of grain, and bushels are not used, except when dealing with government sales or contracts.

In reporting on the work of the Bureau of Field Crops, Mr. Warne indicated that the growth in the use of drugs and antibiotics in feedstuffs made analysis for special additives a major factor in feed control work. During 1959, the staff of 25 people issued more than 8,000 reports of inspections and analyses. Included in these figures were over 1,700 vitamin assays, and 1,200 analyses for drug ingredients.

"A majority of commercial feeds are now handled in bulk," Mr. Warne noted. "Some concerns are equipped to handle bulk deliveries only while others report over 75% bulk deliveries." He said inspection procedures are being adjusted to compensate for this marketing change to provide for greater coverage of the industry.

"We point with pride to the fact that the 4¢ per ton inspection tax remains the same as that originally assessed on sales to the consumer-buyer," he commented. "We cannot, however, take full credit for this fact, as we must acknowledge the tremendous growth of your industry."

He said sales of feed have increased to the extent that income and expenses are again in balance. "With the continuance of the present production rate, no changes in our financing requirements are contemplated," he noted.

Though the benefits of medicated feed to livestock feeders and poultrymen are now well established, Mr. Warne said, he cautioned the feed manufacturer to exercise great responsibility toward mixing and labeling.

"Variance from federal and state requirements can only result in disaster," he said. "Failure to correct deficiencies can only reflect on the quality of the manufacturer's product."

Mr. Warne brought up the subject of concern created by the attention that has been directed at the presence of pesticide residues on feed ingredients.

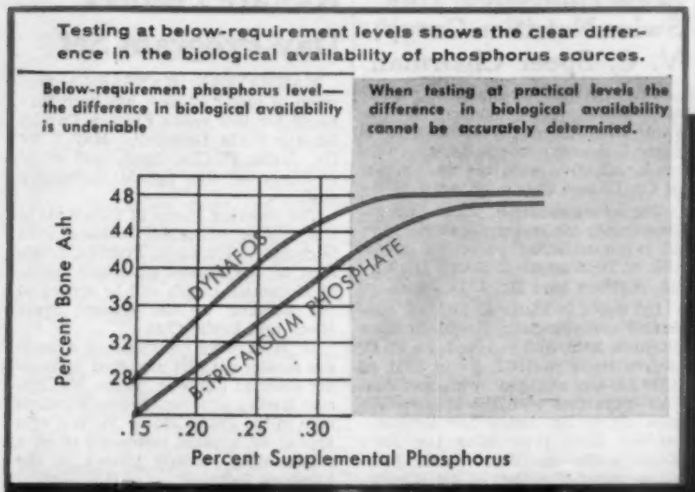
"We are vitally interested in the hazards that pesticide residues present to the health and productivity of livestock," he said. "Occasionally enough material drifts onto feed to seriously affect the animals or to interfere with the weight gain of meat animals or milk production of dairy animals. Drift, I suspect, is not the major source of our difficulties, though it should be eliminated or minimized."

Mr. Warne commented that it has been known for 13 years that DDT and several other of the newer pesticides present a different and much more difficult problem. He said small amounts of DDT on the feed of dairy and beef cattle do not injure the animals, but these chemicals do accumulate in their body fat and milk fat.

Appropriate tolerances have been established for residues of DDT in the fat of meat, he said, but no tolerance has been established permitting any DDT or other pesticide chemical in milk. "For various reasons it seems unlikely in the near future that the Food and Drug Administration will adopt a tolerance other than 'zero' for residues in milk."

Reporting on the work of the Bureau of Market Enforcement, Mr. Warne declared that the application of the Produce Dealers Act is to promote honest and faithful handling of California farm products by licenses, the protection of the industry against illegal trade practices, and the limitation of unfair competition.

During 1959, Mr. Warne reported, the Bureau of Market Enforcement handled 857 complaints involving $558,000, held 144 hearings, revoked 17 licenses, suspended 31 and refused 24. During this period, 53 criminal prosecutions of unlicensed operators were initiated.



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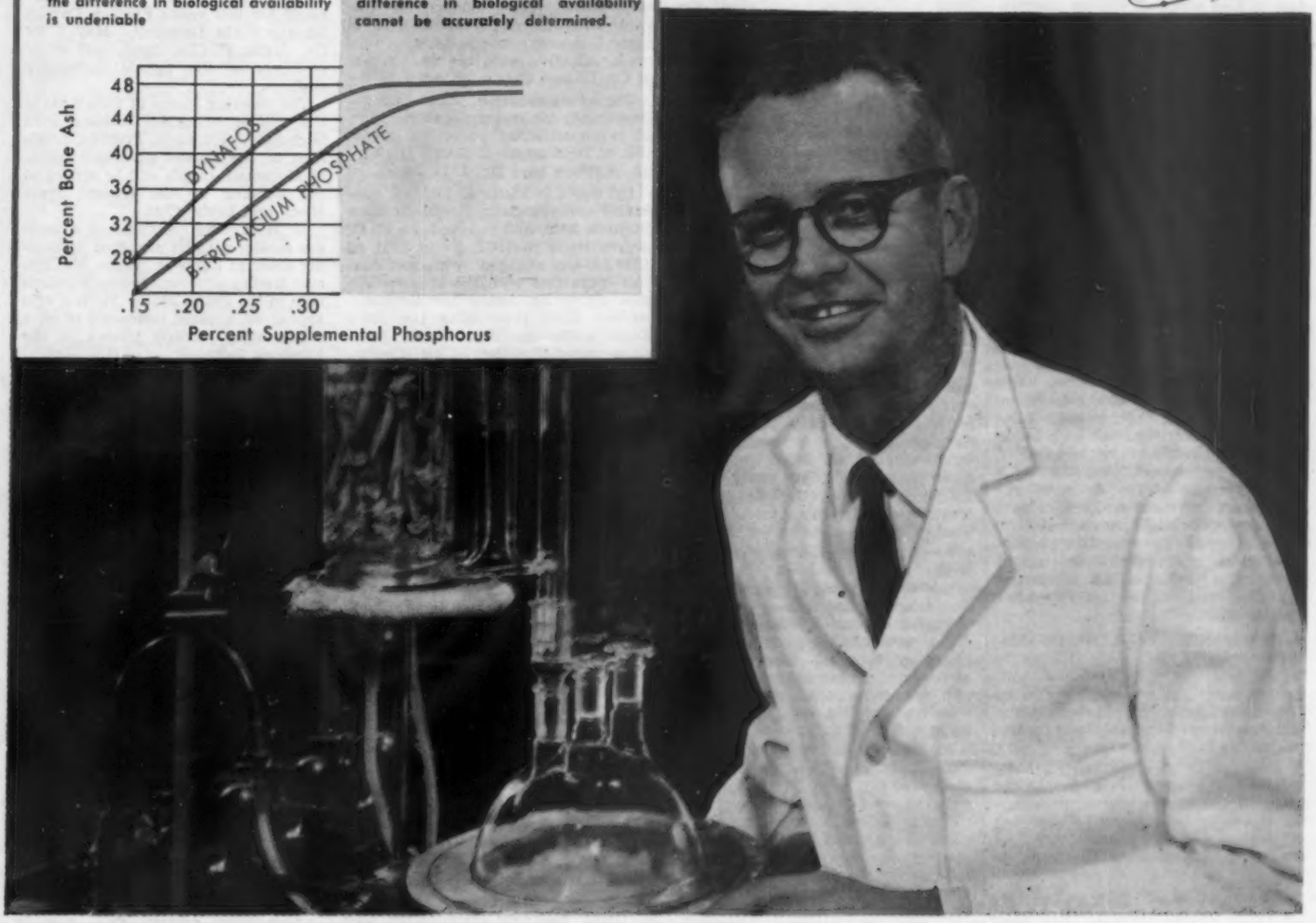

Dr. Herbert Peeler, Director of Animal Nutrition Research at IMC, supervises the "IMC test" of feed phosphorus value — the *IMC Biological Assay of Phosphorus Availability.*

WE MEASURE THE DIFFERENCE IN THE BIOLOGICAL AVAILABILITY OF PHOSPHORUS WHERE THE TRUE DIFFERENCE SHOWS UP

Only a test that measures phosphorus biological availability at *below-requirement levels* shows *true* nutritional value. That's why below-requirement level testing is the basis of the *IMC Biological Assay of Phosphorus Availability* — the test we use to guard the consistent high value of DYNAFOS.

Other tests attempt to measure phosphorus biological availability at the "practical" level — that is, phosphorus performance is measured in typical commercial feeds. Here, results are masked because phosphate compounds present in the test ration "cover up" the poor biological availability of inadequate sources.

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Value, Current Use Status of Additives Analyzed by Scientists at Feeders' Day

LAFAYETTE, IND. — An evaluation of feed additives and an analysis of the current status of approved hormone use in beef cattle production were presented here April 22 at the Indiana Cattle Feeders Day (Feedstuffs, April 23) by two Purdue University animal scientists, Dr. F. N. Andrews and Dr. W. M. Beeson.

Discussed were: Antibiotics, enzymes, natural hormones, synthetic "hormones," ethanol, tranquilizers, live rumen cultures, lysine and other feed additives.

Dr. Beeson noted, "There are marked differences in the response of cattle to feed additives depending on sex, drylot or pasture, growing or fattening rations, type of grain fed, length of feeding period, disease level and environment." He said interpretations of additive responses reported at the Indiana event were made on the basis of data existing at the present time, "but, in several instances, more critical research needs to be conducted to study the mode of action of certain new feed additives."

The purpose of Dr. Andrews' report was to review the effects of natural hormones and synthetic materials which have hormone-like properties which are available for use in beef cattle under certain conditions specified by the Food and Drug Administration.

HORMONES AND HORMONE-LIKE SUBSTANCES—Following is a summary of Dr. Andrews' talk which covered the present status of the use of hormones and hormone-like substances currently approved for use in feeding beef cattle:

Feeding of diethylstilbestrol: "In general, the addition of 10 mg. of diethylstilbestrol to the daily rations of steers or heifers can be expected to increase rate of gain 10-25% and feed efficiency 5-15%," Dr. Andrews reported.

Implantation of diethylstilbestrol: A single implantation of diethylstilbestrol is usually effective for 4-5 months, he said. The improvement in rate of gain (10-25%) and in feed efficiency (5-15%) is similar to that obtained by feeding diethylstilbestrol.

Dr. Andrews told cattle feeders that heifers and steers are different in several respects and they should be aware of "the vaginal prolapse problem" when using diethylstilbestrol for beef heifers, but noted that under practical feedlot conditions many heifers have been feed or implanted with diethylstilbestrol without any undesirable results.

Implantation of estradiol benzoate and progesterone in steers: Dr. Andrews said extensive studies at experiment stations showed that pellets containing estradiol benzoate and progesterone produced effects which were substantially the same as the feeding or the implantation of diethylstilbestrol.

He pointed out changes that have been made in estradiol-progesterone pellets as new research was gathered.

"Since May, 1959, the implants have contained a total of 20 mg. of estradiol benzoate and 200 mg. of progesterone per steer," he reported. "The pellets must be implanted beneath the skin at the base of the ear. Their use is recommended during the last 2-5 months of the fattening period in steers only and within the weight range of 400 to 1,000 lb."

Implantation of estradiol benzoate and testosterone propionate in heifers: Research by industrial and experiment station researchers led to the development of a special testosterone implant for heifers only. Dr. Andrews said heifers ranging in weight from 400 to 800 lb. may be treated with implants containing a total of 20 mg. of estradiol benzoate and 200 mg. of testosterone propionate.

Injection of paste containing estradiol valerate, testosterone enanthate and progesterone caproate: Dr. Andrews reported that a combination of 24 mg. of estradiol valerate, 60 mg. of testosterone enanthate and 60 mg. of progesterone caproate is now available in paste form to commercial cattle feeders.

Reviewing test results, he said in 1958-59 experiments with beef heifers at Purdue this paste "did not produce quite as good gains as the estradiol-testosterone pellet implant, and it currently appears that it will not equal the estradiol-testosterone pellet. However, it has the same general effects as the estradiol-testosterone combination."

Safety of hormones and hormone-like substances in beef cattle: Dr. Andrews said the five hormonal treatments he described have been exhaustively studied by state, federal and industrial scientists. "Their use is permitted under certain specified conditions," he noted. "These conditions must be carefully observed, and when they are observed there will be no danger to the animals, producers or consumers."

Future of growth-promoting substances of a hormonal nature: "Since it was not known until the 1947 Pur-

(Turn to ADDITIVES, page 94)

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
February 20	1,079	415	784	802	131	742	1,987	2,024
February 27	1,059	497	657	712	152	726	1,947	2,216
March 5	1,190	475	709	770	112	727	1,934	2,158
March 12	1,172	445	723	780	105	664	1,880	2,261
March 19	1,172	475	746	796	82	721	1,738	2,385
March 26	1,206	481	872	742	126	596	1,924	2,242
April 2	1,158	493	736	750	121	535	2,074	2,139
April 9	1,230	372	656	786	108	557	2,053	1,988
April 16	1,176	533	777	788	109	588	2,073	1,986
April 23	1,166	452	770	798	125	569	2,036	2,052

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
February 20	1,334	518	3,117	412	6,789	183	3,704	2,448
February 27	1,343	457	3,174	409	6,833	219	3,834	2,281
March 5	1,161	472	3,196	382	6,798	227	3,874	2,533
March 12	1,170	385	3,327	383	6,933	223	3,758	2,334
March 19	1,124	479	3,227	365	7,167	231	3,764	2,474
March 26	1,227	521	3,230	364	7,074	227	3,977	2,434
April 2	1,078	542	3,171	354	7,002	263	3,922	2,467
April 9	1,104	542	3,205	333	6,949	226	4,139	2,381
April 16	1,227	493	3,073	304	6,951	214	3,997	2,378
April 23	1,145	621	3,108	318	7,304	211	4,277	2,305

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1960	Total 22 areas 1959
February 20	3,807	391	2,290	302	256	1,117	34,583	33,798
February 27	3,855	390	2,262	288	252	1,066	34,645	34,534
March 5	3,781	381	2,146	355	218	1,159	34,748	35,416
March 12	3,712	398	2,324	368	227	1,137	34,709	36,330
March 19	3,730	419	2,213	378	275	1,118	35,089	36,645
March 26	3,716	435	2,122	347	322	1,224	35,409	37,098
April 2	3,753	427	2,032	288	275	1,192	34,772	37,424
April 9	3,677	493	2,046	303	270	1,273	34,691	37,076
April 16	3,720	479	2,109	283	311	1,185	34,754	36,850
April 23	3,896	498	2,377	401	279	1,278	35,980	36,777

Iowa Announces New Swine Nutrition Group; V. C. Speer Chairman

AMES, IOWA—A change in the responsibilities of personnel on the swine nutrition research staff at Iowa State University was announced this week, effective with the resignation of Dr. Damon Catron on April 30.

The reorganization places all responsibility for research and teaching of swine nutrition under the direction of Dr. Vaughn C. Speer, Dr. Virgil W. Hays, and Dr. J. D. Jones.

Dr. Speer, a native of Milford, concluded undergraduate studies at Iowa State in 1949, and received the Ph.D. degree there in 1957. From 1951 to 1953 he was engaged in product control operations with the Ralston Purina Co. of St. Louis, Mo. Recently, he has been supervising the Iowa State swine nutrition farm operations under direction of Dr. Catron. Dr. Speer's research has involved temperature-nutritional interactions, mineral requirements of pigs during the finishing period, use of additives and the nutritional requirements of sows during gestation.

Dr. Hays joined the Iowa State staff after his graduation from Oklahoma State University in 1954, and received the Ph.D. degree from Iowa State in 1957. He has had extensive training in the fields of statistics and writing. His research projects include protein utilization, energy-protein relationships, and carcass quality as related to rations.

Dr. Jones holds the A.B. degree from Ripon College and the M.S. and Ph.D. degrees from the University of Wisconsin. His advanced training has been in the field of biochemistry with special emphasis on animal nutrition and vitamins. He will be in charge of both basic and applied laboratory work in the swine nutrition area. His particular interests include fundamental digestion processes, lipid metabolism and vitamin utilization, and blood nitrogen patterns and performance.

Under the new organization plan Dr. Speer will be in charge of the swine nutrition farm, and will also serve as chairman of the swine nutrition group which will direct both teaching and research programs.

Dr. Catron, who headed the swine nutrition work at Iowa State for 13 years, will join Walnut Grove Products Co., Atlantic, Iowa, as vice president in charge of research and marketing. He has been at Iowa State since 1945.

Morea Distributors To Be at AFMA

NEW YORK — Mixer-distributors currently engaged in the blending and sale of Morea liquid feed will be present for discussions in U.S. Industrial Chemicals Co. suite 2500 at the American Feed Manufacturers Assn. convention in Chicago, according to Dr. H. J. Prebluda, manager, U.S.I. special products sales, New York.

He said this will give other prospective distributors the opportunity to obtain practical answers about sales and distribution of Morea liquid feed.

"A miniature plant which will help our guests visualize the final liquid feed blending operation will be on display in the suite. Also, we will have a small model of a storage-tank feeding unit, which shows the difference between liquid and conventional supplement feeding," he explained.

Dr. Prebluda said Philip C. Anderson, president, Feed Service Corp., Crete, Nebr., and J. C. Nosky, vice president, will be at the U.S.I. suite. Feed Service Corp. manufactures and distributes Morea liquid premix throughout the Midwest, and a number of its mixer-distributors will be on hand to answer questions concerning sale of liquid feed in that area, he pointed out.

K-State Feeders Day Program Set

MANHATTAN, KANSAS—A program of broad interest has been prepared for this year's Feeders Day at Kansas State University May 7 by Dr. Rufus F. Cox, head, and other members of the animal husbandry staff.

The meeting starts at 9:30 a.m. in the animal industries building with Nicholas V. Hudelson, Pomona, president of the Kansas Livestock Assn., as chairman. Lunch will be served in the building by the Kansas State Block and Bridle Club.

D. W. Lewter, operator of a modern feedlot with its own feed processing plant at Lubbock, Texas, will discuss feeding problems facing livestock men in the Plains states. He will also appear on a panel composed of men representing various phases of the livestock industry.

Tests to be reported at Feeders' Day include the value of pelleting feeds, relative value of artificially dried soft corn at various temperatures, effects of burning bluestem pasture and deferred and rotational grazing, a comparison of rolled sorghum grain versus the same finely ground and pelleted, and a ration composed entirely of roughages in normal form as compared with the same ingredients pelleted.

A three-phase experiment with enzymes will include studies using corn in a fattening ration, and enzymes which act upon carbohydrates and upon both carbohydrates and protein.

Other tests to be reported are those of using entire grain sorghum plants that are harvested as silage and as dehydrated pellets, the value of cobalt as an added trace mineral, of antibiotics in a winter ration, and of protein salt mixture blocks as a supplement to steers on winter pasture compared with hand feeding.

Slow Demand Lowers Oilseed Meal Prices

MEMPHIS, TENN.—Slow demand for the cash article influenced lower oilseed meal prices on the Memphis Board of Trade during the past week.

This resulted from light business in mixed feed. Part of this was attributed to farm territories using corn with very high moisture as a supplement for mixed feeds.

Warming weather was a big factor in the drop, which was cushioned slightly at the end of the period by a stock report of grains that was considered bullish.

The nearby soybean oil meal cash market developed an on-track situation over almost the entire nation, one pit observer said, with an overproduction of this product at the present. There were reports of possibilities of cutbacks or shutdowns until a better tone occurs in the market.

For the immediate future, little likelihood exists of a sustained upturn in soybean oil meal, unless some definite signs of better feed business appear.

Cash cottonseed oil meal was very slow, with only demand for immediate shipment. At the moment, this is the most depressed price and buyers are reluctant to pay premiums on forward months.

Memphis basis soybean oil meal closed April 26 unchanged to $1 ton lower, unrestricted soybean oil meal 50¢@$1 lower and bulk solvent cottonseed oil meal unchanged to $2.75 lower.

Dehy Group to Meet

KANSAS CITY—The Kansas Dehydrators Assn. has announced that its spring meeting scheduled for May 3 will be open to all dehydrators. The meeting will start at 10 a.m. in Room 208 of the Student Union Building at Kansas State University, Manhattan. Registration is set for 9 a.m.

Nopco Announces New Feed Product

NEWARK, N.J. — Nopco Chemical Co. has announced a new feed supplement for poultry and livestock feeds. Called "Nopgro," the product is a combined fungal and bacterial fermentation supplement produced from Aspergillus oryzae and Bacillus subtilis on a wheat bran base.

"Extensive experiments have shown that Nopgro effectively improves growth and feed efficiency in broilers fed certain rations," according to a Nopco report.

"Cattle feeding trials conducted at university experiment stations also indicate enhanced growth and feed efficiency with Nopgro.

"Tests, using this product, currently in progress are producing interesting data on the stimulation of egg production. It appears that the nutritive value of Nopgro is derived not only from the wide variety of enzymes present in the product, but also from other growth factors in the fermentations."

The Nopco report also noted that the new product is approved by Food and Drug Administration.

R. F. Peterson Dies In Auto Accident

OXNARD, CAL. — Richard F. Peterson, 41, of Moorpark, Cal., a poultry and feed industry executive, was killed in an automobile accident near here April 24. Mr. Peterson and three other persons—Mrs. Peterson, dairyman Ralph J. Hop and Mrs. Hop —were killed when their car skidded at an intersection.

Mr. Peterson founded the Peterson Milling Co. 10 years ago, and some five years ago he formed a 50% merger with Dennis Johnson, Moorpark hatcheryman and commercial egg producer.

Mr. Peterson was owner with Mr. Johnson of the Marvin R. Paige turkey processing plant, which includes facilities for processing 4,000 turkeys a day. The partnership owns 10 acres of land at Moorpark which has a capacity for growing about 250,000 turkeys. In addition, the two men bought 1,000 acres of land farther north in California, and they leased farms with 400 additional acres in the Moorpark area. They maintain 3,000 breeder hens and have a hatchery with a 72,000 egg capacity, which will possibly produce 10,000 poults a week.

The feed plant produces about 80 tons of feed per day. With retailing facilities in Los Angeles, the Peterson and Johnson operation is said to be one of California's major integrated operations for growing, processing and marketing turkeys on a year-round basis.

Mr. Waters, brother of Mrs. Peterson, will act as executor and trustee in connection with the wills left by the Petersons. Mr. Peterson had interests in two corporations with Mr. Johnson, as well as partnership real estate and the partnership turkey growing operation.

Mr. and Mrs. Peterson are survived by three children.

Feeder Pig Sales Set

LITTLE ROCK, ARK.—More than 2,500 head of top quality feeder pigs will be sold at cooperative feeder pig sales in early May, the Arkansas Extension Service announces.

The sales will be held at Imboden, May 4; Dardanelle, May 5, and Warren, May 6, according to A. L. Owen, extension livestock marketing specialist.

New Address for Firm

NEW YORK—Corn Products Sales Co. has announced that its offices are now permanently located at a new address: 9 East 55th St., New York 22, N.Y.

AFMA Names Control, Nutrition Director

CHICAGO — Lee H. Boyd, Farm Bureau Milling Co., Hammond, Ind., will become the new director of Feed Control and Nutrition of American Feed Manufacturers Assn., Chicago, on June 1. The announcement was made by W. E. Glennon, AFMA president.

Lee H. Boyd

At AFMA, Mr. Boyd will be responsible for coordinating the work of the nutrition council, feed control relations committee, the committee of purchasing agents, and the executive traffic committee. In addition, he will maintain close contact with college and federal nutrition research scientists, state feed control officials, attend national scientific association meetings, and assist in state legislative problems.

Mr. Boyd attended Pennsylvania State College and Purdue University. After graduation, he was employed at Farm Bureau Milling Co. as an assistant buyer. His work has also included feed formulation, representation on an inter-cooperative committee controlling nutrition research work and the preparation of state and federal license information.

"We are very pleased Mr. Boyd is joining AFMA, and know he will be a most valuable contribution to our staff functions and to the welfare of the feed industry," said Mr. Glennon.

Assistant to Nutrena President Appointed

MINNEAPOLIS — Appointment of David O. Wentzell as assistant to the president of Nutrena Mills, Inc., has been announced here by James C. North, president. The firm is the feed manufacturing and marketing subsidiary of Cargill, Inc.

Mr. Wentzell, a grain merchant in Cargill and Nutrena organizations since 1945, will continue as executive supervisor of grain ingredient purchasing for Nutrena, in addition to the broader duties of his new post.

After completing a Cargill training program, Mr. Wentzell was assigned to the firm's Sioux City grain office. He moved in 1951 to Cargill's regional headquarters in Chicago and transferred to the company's executive office here in 1955. He became grain buyer here for Nutrena in 1957.

Animal Health Group Names Directors

WASHINGTON — Members of the board of directors, along with officers, were elected at the annual meeting of the Animal Health Institute. (Feedstuffs, April 23.)

Members of the board of directors are:

Terms expiring in 1961 — Albert Chervinak, E. R. Squibb & Son, New York City; Dr. Dan Russell, I. D. Russell Co., Kansas City, Mo.; Bernard Weiner, Veterinary Products Co., Kansas City, Mo., and C. W. Whitmoyer, Whitmoyer Laboratories, Myerstown, Pa.

Terms expiring in 1962—Hollis H. Brower, Dow Chemical Co., Midland, Mich.; John D. Givin, Armour Laboratories, Chicago; Ivan Mendenhall, Anchor Serum Co., St. Joseph, Mo., and L. R. Patton, Sterwin Chemicals, Inc., New York City.

Terms expiring in 1963—Dr. A. L. Andrews, Hess & Clark, Inc., Ashland, Ohio; Dr. John G. Salsbury, Dr. Salsbury's Laboratories, Charles City, Iowa; Floyd Thayer, Abbott Laboratories, Chicago, and George Varnes, Eli Lilly & Co., Inc., Indianapolis, Ind.

Broiler Egg Set Shows Increase

SALISBURY, MD.—The national egg set for the production of broiler chicks jumped forward last week with a 10% increase over a year ago.

Hatcherymen in the 22 important broiler producing states set 53,034,000 eggs. It was also a 2% increase over the previous week. Settings were up from the previous week in 15 of the 22 states.

Broiler chick placements in the 22 states totaled 35,980,000. This was 4% above the previous week but still 2% below the same week a year ago. Increases were reported in 13 states. The largest increases occurred in Georgia, Texas, Alabama and Arkansas.

Here in Delmarva, broiler prices slid slightly last week. The average price paid on the farm was 17.19¢. A week earlier the price was 17.79¢. A year ago the price was 17.53¢.

Feed Production School Board to Meet May 10

KANSAS CITY—A special breakfast session of the board of trustees of Feed Production School, Inc., has been scheduled to be conducted May 10 in Chicago during the American Feed Manufacturers Assn. convention. Larry Alley, trustee chairman, said the board would meet at 7:30 a.m. on that date in dining room No. 1 in the Conrad Hilton Hotel.

The program being planned for the school to be held in Kansas City Sept. 21-23 will be reviewed, and Eric Carlson, chairman of the school's research committee, will present research projects to be discussed at future schools.

Peter Hand Appoints Salesman, Distributor

CHICAGO — Announcement of the appointment of a new sales representative and a new distributor has been made by the Peter Hand Foundation.

William C. Boyd has been named sales representative in Oklahoma, western and southern Texas and New Mexico, and Nutrition & Supply Service, Bozeman, Mont., has been appointed exclusive distributor in Montana, Idaho, northern Wyoming and eastern Washington and Oregon for the firm. Raleigh D. Yuhas is general manager of Nutrition & Supply Service.

Mr. Boyd is a former teacher of vocational agriculture and was with Pillsbury Co. in the feed department for 10 years. He also, at one time, was manager of the Neimeyer Grain Co., Little Rock, Ark. He attended Southern State College, Magnolia, Ark., and the University of Arkansas, Fayetteville.

According to Harry N. White, sales manager for Peter Hand, Nutrition & Supply Service will carry a complete stock of the foundation's feed additives, including vitamins, antibiotics, custom and standard premixes, with shipping facilities in Bozeman and Billings. According to Mr. White, the firm will establish additional shipping points in the near future.

Nutrition & Supply was formed recently with Mr. Yuhas, former feed specialist of McKesson & Robbins, as general manager.

William C. Boyd Raleigh D. Yuhas

Signs of New Vitality In Broiler Business

FOREST, MISS. — New vitality is being injected into the broiler business in Mississippi.

The Jackson (Miss.) Ledger reported this evidence:

Broiler houses which were empty last fall are filling up again as baby chicks become available.

A Scott County poultryman said the county soon may record a new high in the number of broilers on feed, which would be around 5 million.

The broiler market is generally better than during the past season's slump. Baby chick prices climbed from as low as 6¢ apiece to around 12¢, and they may go even higher. Hatching egg prices are spiraling, too.

The Jackson newspaper reported that because of an anticipated shortage of baby chicks, some poultrymen say another big surplus of broilers won't be possible for six months to a year.

Broiler growers, feed manufacturers and dealers, hatcherymen and processors, are expanding their operations.

A broiler grower in the Forest, Miss., area, A. M. Sessums, has plans for constructing a 100-ton-daily feed mill to make feed under contract for Red Hat Broiler Supply Co., which is expanding its growing operations.

The Sessums mill will supplement the Red Hat feed supply from the C. J. Lackey Feed Mill which has been manufacturing feed for Red Hat for many months.

Swift & Co. has moved into broiler growing and has contracted for feed with Fred Moore, who has a 100-ton mill at Morton. Mr. Moore has leased the D. W. Boutwell broiler farms.

Scott County Grain Elevator has installed a new hatchery capable of hatching 42,000 chicks a week. The Jackson Ledger said it had been reported that the Davis Brothers at Pelahatchie are expanding their broiler farm facilities.

Processing plants in the Forest, Miss., area are operating more hours now than during the winter. Chronic respiratory disease, which caused many birds to be condemned, seems to be less severe. Condemnations at plants were reported to be running far less than a few weeks ago.

Merck Puts in Motion Agrozyme Distribution To Feed Manufacturers

RAHWAY, N.J. — Nationwide distribution of "Agrozyme," new beef cattle growth stimulant, is now underway to feed manufacturers, the chemical division of Merck & Co., Inc., announced this week.

James E. McCabe, director of marketing, agricultural products, said, "We can now recommend the incorporation of 'Agrozyme' in beef cattle fattening rations." (Merck announced last week that the enzyme mixture had been cleared by the Food and Drug Administration for use in nonmedicated beef cattle rations.—Feedstuffs, April 23.)

"Agrozyme" has been stocked for immediate release to mills from warehouses in Teterboro, N.J.; St. Louis, Mo., and Los Angeles, Cal. Mr. McCabe reported that the product is available at all shipping points for feed manufacturer use.

"The addition of 'Agrozyme' to beef cattle rations will permit a greater nutrition return from corn in high energy corn fattening rations," Mr. McCabe said.

Characteristics

He noted that the Merck product will have these characteristics:

(1) "A mixture of enzymes produced by Bacillus subtilis, dried and diluted with oyster shell meal to pre-

(Turn to MERCK, page 94)

Egg Production Promotion Set By Hess & Clark

ASHLAND, OHIO—A new industry-wide promotion aimed at helping egg producers raise income through more efficient production has been announced by Russell H. Eshelman, vice president in charge of marketing for Hess & Clark.

"The 'Full Performance Index' (FPI) campaign for commercial egg flocks provides a theme that feed companies can adapt to promote field performance nutrition, that poultry breeders can use to promote full performance breeding and that poultry equipment firms can use to promote housing and equipment for full performance environment," he said. "For poultrymen, FPI provides the basis for a new way to improve flock efficiency by setting up flock performance goals on egg production, feed requirements per dozen eggs, hen house livability and percentage of grade A eggs."

Goals Set

Hess & Clark's campaign sets up the following goals for poultrymen to achieve in improving flock performance efficiency:

"(1) 250 eggs per hen housed for 12 months of lay,

"(2) 4.5 or less pounds feed per dozen eggs,

"(3) 90% or better hen house livability and

"(4) 90% or better grade A eggs."

In arriving at these index goals, Mr. Eshelman said, a study was made of all official U.S. random sample laying tests and of standards of performance that college poultry experts have established. Top egg producers and poultry breeders also were contacted, he noted.

To aid poultrymen in improving the efficiency of their operations, a new type of Flock Performance Inventory record chart is being made available without charge through feed manufacturers, dealers, hatcherymen and Hess & Clark. The chart provides sections for recording egg sales by grades, feed purchases, egg collections, hens culled and death losses. A special section provides for monthly and six-month summaries, with examples showing how to compute feed-egg conversion rate, percentage grade A eggs, egg production per hen and percentage of livability.

"The objectives of the FPI plan," Mr. Eshelman said, "are to persuade

(Turn to EGG PROMOTION, page 92)

COMPLIANCE

(Continued from page 1)

phases of plant operations and facilities which are involved.

Feed Production School, Inc., is conducting and supervising the project. Considerable information and data are being compiled through a special survey by a staff member. FDA is expected to provide a speaker for the school. The Feed Additives Council also will cooperate in the project.

Through the special survey, information and pictures will be assembled to show all phases of plant handling requirements for compliance.

For example, inventory control information will spell out procedures for storing critical ingredients, receiving of materials, coding and inventory records.

Also covered will be preparation and handling of premixes mixed in the plant; various procedures and controls in batch mixing; and cleaning of mixers, bins, conveyors and other facilities to prevent contamination; plus other details.

"The information to be presented is of vital industry-wide importance to all feed plant operators," the school committee pointed out.

CAPITAL COMMENT

BY JOHN CIPPERLY

Grain Storage

WASHINGTON—Joseph B. Gregg, partner of the Morrison-Gregg-Mitchell Grain Co., Kansas City, did a noble job April 28 speaking as a witness for the southwestern country elevators and the Kansas City Board of Trade in his appearance before the Symington sub-committee investigating activities of the Commodity Credit Corp.

Mr. Gregg addressed himself exclusively to the new proposed handling charges that the U.S. Department of Agriculture would permit for the renewed Uniform Grain Storage Agreement for country houses.

Mr. Gregg appeared to have gained most favorable attention from the chairman, Sen. Stuart Symington (D., Mo.) who at the close of the Gregg testimony congratulated him on his concise, objective and illuminating statement.

Mr. Gregg stated that he was willing to accept the USDA cost study estimates as the basis for his proposal to show exactly what happens to the country house which is primarily a handling house. He explained to the committee that, under the proposed new handling rate for wheat in the Southwest, a house handling 100,000 bu. of wheat a year would show a net profit of about $400.

He said that his own company probably could operate successfully if the old rate of 7¢ per bu. for handling was reinstated. Previously, it had been learned that the committee staff had concluded that, in many instances, the old rates were inequitable for the small country houses.

As Mr. Gregg concluded his testimony, Sen. Symington asked Mr. Gregg if he thought the 7¢ rate was adequate, and he said he was reluctant at that moment to utter an opinion, but he believed that even the old higher rate seemed inadequate for many small country handling houses. Sen. Symington immediately asked Mr. Gregg to send directly to him a memorandum on this problem and, at the same time, instructed his counsel, Richard Schmidt, Denver, to send a copy to the USDA immediately since he considered it a valuable contribution to the problem.

Subsequently, conversations with the committee disclosed to this reporter that the committee was impressed by the completeness, objectivity and clarity of the Gregg testimony. More Joe Greggs are needed here before congressional committees. All interviewed considered him to be an excellent and convincing witness.

Trade, USDA Negotiate

While Mr. Gregg was setting a high standard for other grain trade witnesses to follow in its protest against reduction in handling charges, at the USDA, the negotiating groups for the trade and USDA were in session.

As Sen. Symington and his staff were exhibiting sympathy for higher handling rates for country elevators, the USDA negotiating group, in a rather ludicrous display of generosity, made this startling concession in its proposed new handling charges. USDA agreed to increase handling charges in the new UGSA contract by ¼¢ per bushel and ¾¢ for country houses. In regard to the country handling rates, this belated show of "generosity" still leaves the country handling rate well below the former 7¢ rate for the Southwest which Mr. Gregg pointed out to the committee as producing about a $400 per year net profit to an elevator handling 100,000 bu. of USDA grain a year.

Another feature which is rising as a vital issue in the negotiations is the position of USDA on breakage of corn in terminal positions wherein the government proposes to penalize the warehousemen in full for such breakage of kernels.

At the time this is written, reports from the April 28 session indicate wide disagreement between the trade and USDA, and it would be no surprise to observers here if the negotiating committee would lay down an ultimatum to modify the repressive new UGSA terms proposed or it would walk out of the meeting.

Freight Rates

WASHINGTON — In an effort to aid southwestern carriers, the Interstate Commerce Commission has indicated to the railroads that it is prepared to approve lower tariffs on the shipment of oilseed meals, cake and pellets from the Mississippi River

(Turn to COMMENT, page 89)

Notes More High-Concentrate Beef Rations, Relates Dynafac Response to Roughage Level

CHICAGO — Commercial feedlot operators are relying more and more on concentrates and less on roughages in their cattle finishing rations because of the highly variable nutritive value of roughages, according to Dr. M. A. Schooley, director of animal health and nutrition for Armour & Co.

He suggested that smaller feeders, who believe that roughage is the cheapest part of the ration, might find out that they were wrong if they kept accurate records.

Dr. Schooley's comments on roughage and concentrate levels in beef cattle rations were part of a scientific paper issued this week on "Roughage Ratios in Relation to Dynafac Premix Performance."

Dr. Schooley said that he became interested in the high and low roughage question, which currently is receiving considerable attention in the cattle feeding industry, through testing of feed additives. He observed that results of using additives were highly variable, as applied to both the Armour additive dynafac and other additives which the company was testing.

Citing a special South Dakota test and reviewing other tests reported over almost four years, Dr. Schooley said the data indicate that a greater response to dynafac premix occurs in the low roughage-high concentrate rations. Best gains were reported when the roughage content was about 20% of the ration.

Variability Cited

"Perhaps the single class of feedstuffs that requires most scrutiny in the cost picture of beef production is roughage," Dr. Schooley said. "The

(Turn to CONCENTRATE, page 89)

Representatives of Manufacturers to Meet

CHICAGO—Manufacturers' representatives are invited to attend an informal meeting at 8 p.m., May 8, in the Buckingham Room of the Conrad Hilton Hotel.

Purpose of the meeting will be to discuss sales policies, a planned new directory and problems of general interest in forming a cohesive trade association for manufacturers' representatives, according to Gladwin A. Read, Gladwin A. Read Co., Evanston, Ill.

Specifide Plans Open House May 5

INDIANAPOLIS — Specifide, Inc., Indianapolis, will hold an open house May 5 at the firm's new facilities at 3477 Hovey in Indianapolis, from 4 p.m. to 8 p.m.

John O. Beasley, president of the company, said the new building and equipment installations were designed with "customer service foremost in mind, and we want our customers to see the facilities."

INGREDIENTS

(Continued from page 1)

week. Mill running time was up while demand from feed manufacturers and jobbers dwindled. Bran and midds fell off up to $4 at some markets and red dog was down around $2.50 ton.

Trading was dull in linseed and cottonseed meals. Demand was still narrow for animal protein feeds, and prices were adjusted downward. Some losses in tankage and meat meal were as much as $4 ton. Alfalfa meal showed no change, but buyers held off whenever possible, waiting for the new crop material.

Average Bulk Prices and Index of Weighted Prices*
(Dollars per ton)

	Apr. 26, 1960	Apr. 19, 1960	Change from previous week
OILSEED MEALS			
Prices at prin. mkts.:			
Soybean meal	63.70	64.25	— .55
Cottonseed meal	60.65	61.70	—1.05
Linseed meal	69.00	69.65	— .65
Copra cake or meal	71.50	71.50	...
Peanut meal	50.50	51.00	— .50
Index	82.5	83.4	—0.9
ANIMAL PROTEIN FEEDS			
Prices at prin. mkts.:			
Meat meal	77.60	79.60	—2.00
Tankage	76.50	78.75	—2.25
Fish meal	98.25	98.25	...
Index	70.8	72.1	—1.3
GRAIN HIGH-PROTEIN FEEDS			
Prices at prin. mkts.:			
Gluten feed and meal	48.00	49.20	—1.20
Dist. dried grains	53.20	56.75	—3.55
Brewers Dried Grains	41.85	42.45	— .60
Index	75.0	77.5	—2.5
WHEAT MILLFEEDS			
Prices at prin. mkts.:			
Bran	38.50	40.10	—1.60
Midds. and shorts	39.90	41.65	—1.75
Index	70.8	73.8	—3.0
OTHER MILLFEEDS			
Prices at prin. mkts.:			
Hominy feed	45.05	45.45	— .40
Rice bran	29.00	29.00	...
Index	68.1	68.6	—0.5
ALFALFA MEAL			
Prices at prin. mkts.	56.45	56.40	+ .05
Index	108.6	108.6	...
MOLASSES, FEEDING			
Prices at prin. mkts.	20.52	20.58	— .06
Index	61.1	61.2	—0.1
ALL FEEDSTUFFS			
Index	77.3	78.6	—1.3
FEED GRAINS			
Prices at prin. mkts.:			
Corn	41.40	41.40	...
Oats	48.60	49.00	— .40
Barley	41.50	41.90	— .40
Grain sorghums	38.50	38.80	— .30
Index	67.4	67.5	—0.1

*Base period of index is 1947-49.
Source: Agricultural Marketing Service, USDA.

FEED DEALER DIES

OWENTON, KY.—Fred Bishop, a feed and seed dealer here for the past 30 years, died April 21 at the Owen County Memorial Hospital. He was 59.

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Welp's Feed Mill, Bancroft, Iowa, uses Baciferm in both Layer and Swine rations. Mr. J. H. Welp reports, "For the past several years we have been using CSC's Baciferm Zinc Bacitracin Antibiotic Supplement in our laying feeds. It is also used in our on-off changing antibiotic protection in Welp's Swine Feeding Program. We use it for the same reason it's preferred by other feed manufacturers. It serves all our needs—is economical and effective and has brought about excellent results and complete customer satisfaction."

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A Report on the Informal Poultry Nutrition Conference

- **Vitamins and Minerals**
- **Enzymes and Antibiotics**
- **Energy, Fat, Protein and Amino Acids**

By Dr. J. R. Couch and Dr. R. E. Davies
Texas Agricultural Experiment Station

EDITOR'S NOTE: The accompanying article summarizes papers presented at the Informal Poultry Nutrition Conference, held April 10 at the Conrad Hilton Hotel in Chicago. The authors are on the staff of the poultry science department, Texas Agricultural Experiment Station, College Station.

It is estimated that there were approximately 300 in attendance at this meeting. There was a total of 23 papers presented; 17 state universities, university agricultural experiment stations and state colleges, along with four commercial research laboratories, were represented. Two of the universities had two papers each.

There were three separate session designations in the program. The first of these was "vitamins and minerals," the second "enzymes and antibiotics" and the third "energy, fat, protein and amino acids."

VITAMINS AND MINERALS

Vitamin K—The stability of menadione sodium bisulfite complex as a source of vitamin K in poultry feeds was brought to the forefront through an address by Dr. Elbert J. Day entitled **"Chemical and Biological Assays of Vitamin K Premixes."** Dr. Day stated that the laboratory at Mississippi State University, State College, had become interested in vitamin K due to the sporadic, continual appearance of the hemorrhagic syndrome in the Mississippi area, and further by the statement that some vitamin K premixes were not as stable as had been formerly assumed. The first concern of Mississippi State, according to Dr. Day, was the stability of the vitamin K (menadione sodium bisulfite complex) in various lots of vitamin premixes that were being merchandised in the Mississippi area.

The first research in this regard was carried out by determining the amount of vitamin K in the vitamin K premixes through the use of the chemical method for determining menadione sodium bisulfite using ethyl cyanoacetate color reaction. According to Dr. Day, this method was found to be fairly accurate and could be repeated to the extent of plus or minus 7 to 8%. Several vitamin K premixes were tested and were found to be up to standard. An identical menadione sodium bisulfite complex manufactured by two different companies which had been stored from one to two months was found to still contain 90 to 97.5% of the guarantee in premixes A and B respectively. Thus, it was apparent that the fear of a low potency in such premixes was not a problem.

It was further found that the loss in potency of menadione sodium bisulfite complex mixed with a calcium carbonate carrier was accelerated in the presence of moisture. Additional carriers investigated included corn, wheat and soybean oil meal. Results presented clearly showed that of the carriers, corn promoted the best stability. Soybean oil meal was the poorest carrier and wheat was intermediate between corn and soybean oil meal in preserving potency. These tests were carried out under an accelerated destruction test procedure which consisted of heat treatment in an autoclave at 7½ lb. pressure. A standard menadione sodium bisulfite preparation was tested under the accelerated procedure conditions along with a stabilized material. The method of stabilization was not given in the paper. The stabilized material retained much more of the potency in the autoclave than did the standard product which was not stabilized.

Tests were carried out to determine if a chemical method for the determination of menadione sodium bisulfite complex, stabilized or unstabilized, accurately predicted the biological value of this feed additive when tested according to standard biological methods for the determination of vitamin K activities. Dr. Day concluded that the chemical method for the determination of menadione sodium bisulfite complex could be projected into a satisfactory measure of the biological activity.

The conclusions from Dr. Day's paper might be listed as follows: (1) A chemical assay for the determination of menadione sodium bisulfite appeared to be fairly accurate in predicting the menadione sodium bisulfite content or activity of premixes. (2) The stability of menadione sodium bisulfite complex premixes was found to be influenced by the type of carrier—corn being the best carrier, which was followed by wheat and soybean oil meal, with calcium carbonate being least satisfactory, especially in the presence of moisture. (3) The stability was further influenced by the manufacturing process, i.e. whether or not the menadione sodium bisulfite had been stabilized when mixed on a carrier or included in a vitamin premix.

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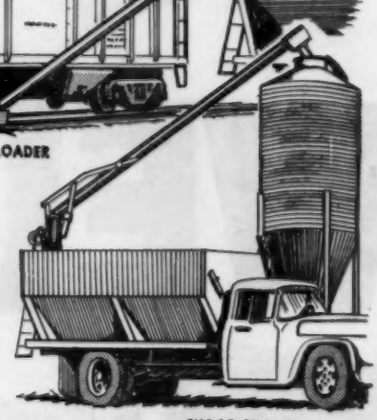
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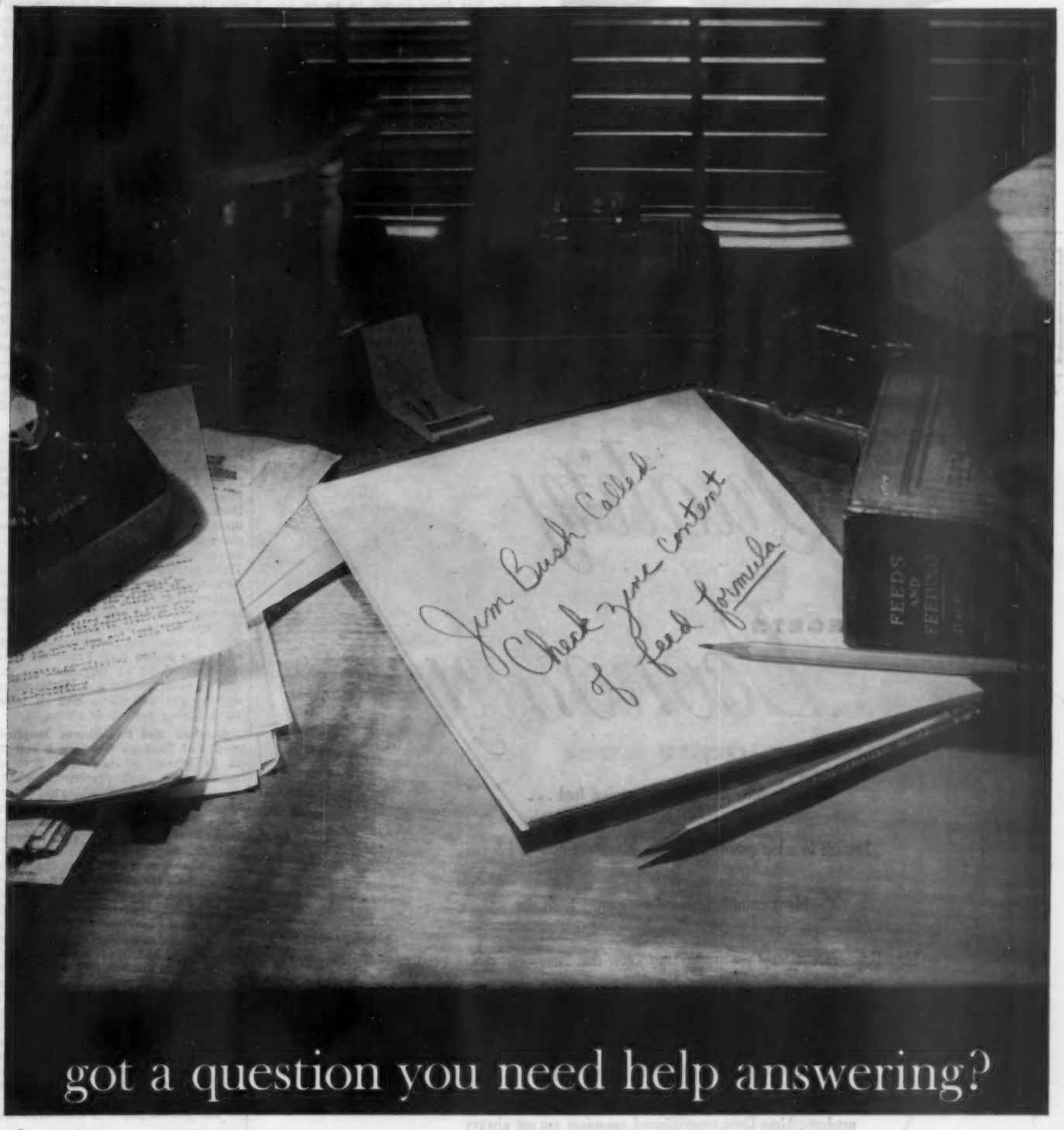

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menadione sodium bisulfite complex (vitamin K), another fat soluble vitamin, has been shown to be of importance in maintaining potency under conditions which may prevail in the field.

Vitamin E—Dr. Martha Dicks, University of Connecticut, Storrs, presented a very outstanding paper concerning **"Methods of Analysis and of Determining the Biopotencies for Alpha Tocopherol."** This, in the estimation of the writer, is a rather important contribution in that the method for the determination of tocopherols in tissues had been simplified. Details will not be given at this particular point. Research workers in this field should contact Dr. Dicks directly for additional information on the method. Essentially, the improvement in the method consisted of the elimination of molecular distillation and other laborious procedures going along with this method and the simplification to a method of chromatography on a magnesium phosphate column followed by elution. It might be of interest to some in the field to note that coenzyme Q (ubiquionine) was the principal interfering substance in the determination of the tocopherol content of tissues.

Dr. Dicks presented further data showing the bioassay which is commonly used in determining the biopotency of products containing tocopherols could be reduced to a three day supplementation bioassay with chicks as the experimental animals.

Vitamin C—Dr. Paul A. Thornton, Colorado State University, Fort Collins, presented a paper entitled **"The Influence of the Protein Level on Response to Vitamin C by Laying Hens."** Dr. Thornton has been carrying on research in this field for a number of years, both on the protein level required by laying hens and the response to vitamin C by layers. According to Dr. Thornton, the study was prompted by the relation of vitamin C to protein metabolism in other species. It has previously been reported from this laboratory that vitamin C was effective for the maintenance of egg weight and egg shell quality under conditions of stress.

Laying diets containing 13 and 17% protein, respectively, were tested with and without added vitamin C in the form of ascorbic acid. The response to vitamin C with regard to egg shell thickness appeared to be dependent upon the protein level, and it was more effective in improving egg shell quality with the 13% protein diet. These results were obtained when the hens were maintained in a constant temperature room at 85° F. but similar results were not obtained at 75° F. Experiments were also carried out with tyrosine and phenylalanine added to the laying diet. From the data it appeared that tyrosine was involved in attaining and maintaining egg weight in pullets and in older birds during periods of stress.

Calcium and Phosphorus Requirements of Turkeys Between 8 and 20 to 24 Weeks of Age—The first of these papers was presented by Dr. James McGinnis, Washington State University, Pullman. The Washington work was concerned with the period from 8 to 24 weeks of age. Average weights, feed conversion and toe ash were used in evaluating the data. Levels of phosphorus used ranged from 0.6% to 0.8% and levels of calcium used ranged from 0.6% to 2.4% in the first experiment. In the second study the calcium levels ranged from 0.5 to 1.3% and the phosphorus levels from 0.5 to 0.9%. Both barley and corn were used for the grain portion of the formula in these two experiments. Dr. McGinnis concluded that the calcium requirement was approximately 0.6% and the phosphorus was 0.6% total phosphorus with a 1:1 ratio. A considerable portion of the phosphorus in these studies was of plant origin.

The second paper in this series was

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presented by Dr. Thomas W. Sullivan, University of Nebraska, Lincoln, Neb., and was concerned with **"The Calcium and Phosphorus Requirements of Broad Breasted Bronze Turkeys, 8-20 Weeks of Age."** Dr. Sullivan's report was essentially a continuation of studies reported before the 1959 meeting of the Poultry Science Assn., and previously reviewed in Feedstuffs, Aug. 22, 1959. Five experiments concerned with the subject in question have been conducted at this laboratory. The last two of the series were the primary subject of the present report. There was no animal protein supplement in the diet. The calcium level varied from 0.9 to 1.9%. The available phosphorus level was 0.6% with a total phosphorus content of 0.85%. The available phosphorus was calculated on the assumption that ⅓ of the phytin phosphorus from plant sources is available. This report also indicated that during the period from 8 to 20 weeks the growing turkey requires not more than 1.1% calcium and less than 0.5% available phosphorus.

These two papers in a sense corroborate what has been used in practices, which have been followed by turkey growers, namely that concentrates containing apparently suboptimum levels of calcium and phosphorus have been utilized by farmers in the field in mixtures with grains. In many instances the writer has been concerned about the low level of calcium and phosphorus intake in comparison with the National Research Council recommendations. It is felt that additional experiments need to be carried out before the levels of calcium and phosphorus of practical feed formulas are reduced to the levels indicated in these reports. However, certainly the present recommended levels of calcium and phosphorus, 2% and 1% respectively for calcium and phosphorus, can be reduced somewhat.

Energy and the Phosphorus Requirement of the Chick—Dr. T. S. Nelson from the laboratory of International Minerals and Chemical Corp., Skokie, Ill., presented the results of studies on **"The Effect of Energy on the Phosphorus Requirement of the Chick."** The diets used in these studies contained 1265 Calories metabolizable energy per pound in the case of the low energy diet and 1605 Calories metabolizable energy per pound in the case of the high energy diet. The author concluded that the best method of expressing the phosphorus requirement was on the basis of amount required per 100 grams gain by the chick. Another method of expressing the phosphorus requirement introduced in this paper was the percentage of total phosphorus in the diet per 1000 Calories metabolizable energy. This value was found to be in the range of 0.5% total phosphorus per 1000 Calories. The phosphorus requirement was directly related to the energy content of the diet. From the practical standpoint it was pointed out that with high energy type broiler diets in present use the total phosphorus content should be in the range of approximately 0.7% total phosphorus. This level is widely used in practical broiler diets. A higher percentage of bone ash was found in the case of female chicks than male chicks in this study.

Trace Minerals—Dr. P. N. Davis, University of California, Davis, presented a paper entitled **"Interference of Soybean Protein in the Utilization of Trace Minerals."** Dr. Davis first reviewed the entire field concerning the goitrogenic properties of soybeans and the relation of isolated soybean protein of the laboratory grade to trace mineral studies as well as bringing in the recent work from the University of California and Cornell University on the chelating properties of ethylene diamine tetraacetic acid (EDTA). A rather complete report in this regard was given before the recent Distillers Feed Conference in Cincinnati on March 23 by Dr. M. L. Scott, Cornell University. EDTA increased growth when added to diets which were low in manganese and zinc. This compound also increased the bone length. In studies concerned with the soybean protein effect, it was pointed out that the soybean protein commonly used in laboratory purified diets interfered with the absorption of molybdenum, zinc, manganese and also probably with iron, copper and iodine. A formation of metal complexes of the metals with the soybean protein was postulated as the explanation for the observations reported. EDTA was postulated to be a stronger chelating agent than the soybean protein, and thus was effective in improving the availability of the minerals previously mentioned.

Inorganic Growth Factor—M. E. Mason, University of Arkansas, Fayetteville, presented a paper on **"The Isolation and Identification of the Inorganic Growth Factor Found in Fish Solubles."** Sardine fish solubles was used in these studies and was fed at levels of 2 and 4%. An exhaustive series of experiments was carried out during which it was determined that the ash of condensed fish solubles was responsible for a considerable portion of the growth response produced by this ingredient when added to the assay diet used in the Arkansas studies. Further fractionations of the ash revealed that the growth response in fish solubles was probably traceable to an interrelationship of molybdenum and copper in the condensed fish solubles ash.

Attention is directed to studies carried out at the Texas Agricultural Experiment Station and reported during 1957 and 1958 to the effect that molybdenum is an essential mineral for the chicks and poults, and further that there is an interrelationship between copper and molybdenum. The Arkansas work certainly confirms studies carried out at the Texas station.

ENZYMES AND ANTIBIOTICS

Enzymes—Two papers were presented from Nopco Chemical Co., Harrison, N.J., and Utah State University, Logan, Utah, respectively, which were concerned with enzymes

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The green material cut for silage, for example, is abundantly supplied with a good many enzymes. When it is properly cut and packed in an air-tight silo, these enzymes will preserve the material by their action upon the proteins and carbohydrates contained within the material itself, assisted secondarily by the enzymes produced by yeasts and bacteria which are native to the material being ensiled. If conditions were always ideal, everyone would make perfect silage every time. Unfortunately—as people have experienced when silage turns out poorly—many variables exist.

These variables are subject to control by applying good practices to silage making. But even so, you cannot control the number of undesirable putrifying and butyric acid forming organisms which are also present in the material along with desirable organisms.

That is why we developed ENsilose. It is produced by fermenting pure sucrose sugar which is placed upon a carrier that is easily added to the green material. Ten pounds of ENsilose is added to each ton of green material by sprinkling it on top of the load or on top of the material between loads. It can be added by an adapter on a blower or hand fed.

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This prefermentation produces sugar derivatives which encourage the growth of favorable organisms in the silo and discourage the growth of unfavorable ones—just as would the enzymes in the original material under ideal conditions. But instead of waiting for favorable organisms to develop naturally, ENsilose introduces them at the beginning of the ensilage process and stops the multiplication of unfavorable organisms by depriving them of oxygen. A large part of the fermentation process is completed in 48 to 72 hours at low temperatures—before the causes of sourness, bad odors and mold can develop.

These low temperatures minimize the destruction of protein, fat, vitamins and N.F.E. by heat. The ability of the ensiling enzymes to break down high-fibre materials into valuable nutrients increases during this period.

Enzymes with activity involving hydrolysis seem to increase the dry matter content of silage when added to the green material. This increase ranges from a small percentage to a very considerable increase.

Enzymes are not considered to be used up or consumed in their activity. Therefore, the greater enzyme development achieved by adding ENsilose remains in the silage, greatly affecting its utilization as feed. This explains why ENsilose not only increases the quality of the silage, the amount of dry matter, but also why animals require less treated silage to make the same gains.

FREE SAMPLES OF ENsilose OFFERED

Northern Biochemical Corp. offers packagers, dealers and farmers samples of ENsilose sufficient to make up a 20-lb. bag of silage.

As soon as grass or legumes are large enough (don't wait for a stage of maturity for this), take out a rotary lawn mower and cut off about 40 lb. Split into halves and put 20 lb. in each of two plastic bags. Mix the ENsilose sample through one bag. Pack down well, being careful not to puncture the bags, tie shut and wait two or three weeks. Open and see the difference! Have any tests made by laboratories that you wish. You be the sole judge and jury.

NOW YOU CAN PACKAGE *ENsilose*

THE ENZYME-BASED SILAGE ACTIVATOR THAT DOES ALL THIS:

✔ LOWERS FEEDING COSTS

Animals require less treated silage to make the same gains, or make greater gains when fed equal amounts of ENsilose-treated silage. (Test data and feeder reports shown in literature).

✔ THREE TIMES THE LACTIC ACID

Samples from six silos in southwestern Minnesota showed the three silos treated with ENsilose averaged three times the lactic acid content as the untreated silos. This amounted to approximately one pound of lactic acid per hundred pounds of untreated silage against three pounds per hundred of treated silage. A pound of lactic acid is worth 2.8 pounds of complete cattle ration.

✔ INCREASES TOTAL ENERGY AVAILABLE

Added calories per ton of ENsilose-treated silage equals the calories in ¾ bushel of corn. This would be equivalent to adding about 7½ bushels of shell corn to 10 tons of silage.

✔ NO LOSS THROUGH SPOILAGE

Eliminates spoilage when air is closed off from surface of the silage. Far less spoilage even when silage is exposed to air.

✔ 5 TO 21% MORE DRY MATERIAL

Consistent increases in dry matter indicates the enzyme action takes up water and converts it into nutrient materials.

✔ MORE APPETIZING FLAVOR

Makes silage animals will relish because it tastes better. When offered both, cattle invariably prefer the ENsilose-treated silage. No waste.

✔ SWEET, PLEASANT AROMA

Silage retains odor of fresh material with a slight fermentation tang. No disagreeable odor clings to clothing after handling ENsilose-treated silage.

✔ ECONOMICAL SILAGE INSURANCE

Only ten pounds used per ton of silage guarantees excellent silage of all kinds — grass, alfalfa, corn, oats, sorghum, beans, etc.

Complete Packaging Program

You can add ENsilose to your line of packaged feeds and supplements, and sell under your brand name. Northern Biochemical Corporation offers regional and national advertising to help all packagers, plus dealer advertising, direct mail, point-of-purchase, and other promotion aids at cost.

Before you consider any silage preservative or silage sweetener—learn how much MORE you can offer with ENsilose!

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Dept. F-3, Sheldon, Iowa

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Please send complete information, test reports, testimonials, literature and list of sales aids, sample prices and packaging program for ENsilose.

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Company .....

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Town .....

and enzyme supplements in poultry feeds.

The first of these was presented by Dr. Harold Yacowitz, Nopco Chemical Co. Barley obtained from Washington state was used as the grain in the poultry feed formulas for this study. Both in vitro and in vivo studies were carried out on various enzyme supplements. The correlation between the chick studies and the in vitro studies (outside the body of the chick) was not very good. It was determined that the enzyme preparations did not contain any appreciable antibiotic activity. Dr. Yacowitz stated during the presentation that a measure of the water insoluble components might be of importance in evaluating enzyme supplements.

Data were presented which showed that crude enzyme supplements produced better and more consistent results than more highly purified enzyme preparations.

The second paper of this series was presented by Dr. J. O. Anderson, Utah State University, and was concerned with enzyme supplementation of hulless barley in diets for chicks. A hulless barley has been developed by the Utah Experiment Station in an effort to improve the feeding value of this grain which is grown in considerable quantity in the western area. Hulless barley contains 2.0-2.2% crude fiber and 11.5 to 12.5% protein. Irrespective of the fact that the hulless barley has a low fiber content, it does not compare favorably with corn when used as the only grain in formulas for chicks. A growth response ranging from 12 to 18% can be obtained when corn is substituted for barley in chick diets in the Utah studies. From these results it is apparent that the hulless barley does not produce much better results than regular barley grown in this area. Dr. Anderson used amylase, clarase, fungal amylase, bacterial amylase and malt diastase in these studies. All of the enzymes used, except malt diastase, produced a growth response when added to diets containing hulless barley as the grain component. The addition of malt itself to the hulless barley diet produced a growth response.

None of the digestive enzymes tested (amylopsin, pancreatin, erepsin and trypsin) produced a response. The plant proteinases available, consisting of ficin, heated ficin, bromelein and papain, produced growth depressions when added to the hulless barley diet. A 12% growth response was produced by the addition of crude bacterial or fungal amylases to hulless barley formulas.

Crystalline bacterial protease and crystalline bacterial amylase were added to the hulless formula with little response. Best results were obtained in these studies when crude enzyme preparations were used. The same was true in the report given by Dr. Yacowitz. In no instance were the results obtained with the hulless barley diet, enzyme supplemented, equal to those when corn made up the grain component of the diet.

A very good question was raised at the end of these two presentations by Dr. Friedman of the Food and Drug Administration, Washington, D.C. The question was, "Is the response obtained with enzymes due to an enzyme or not?" If the response is not due to an enzyme but rather to some unidentified activity of the crude products, the designation given such products should be more specific.

Antibiotics—Three papers on antibiotics were presented. The first of these was by Dr. D. A. Heth, University of Wisconsin, Madison. Dr. Heth summarized all of the antibiotic studies carried out at Wisconsin over a period of nine years. Both practical and synthetic type diets were used in such studies. The duration of the tests was three weeks. Eighteen hundred fifty-six birds were used in studies where penicillin was the antibiotic and 1808 birds were used where the tetracyclines, Aureomycin or Terramycin, were used. From these results it was apparent the antibiotic response varies, and failures to obtain growth promotion were noted in 1952 and 1953. The weight response obtained from antibiotic supplementation of chick diets was less consistent during the last four years than previously. The average growth response to penicillin during the periods 1951-1954 and 1957-1960 was 8% over the basal in each case. Thus it is apparent that the antibiotic response still prevails. The number of responses greatly exceeded the number of failures. The response to the tetracyclines was of similar magnitude.

From the results presented it might be concluded that these data support the continued usage of antibiotics in poultry feeds and indicate that there is no long-term change in antibiotic response. That there is a relation between the antibiotic response and the weight of the intestinal tract was indicated from the data reported. The relative weight of the intestinal tract decreases as the weight of the birds increases.

The second antibiotic paper was presented by Dr. Edward C. Naber, Ohio State University, Columbus, and was entitled **"Effect of Antibiotics on the Reproductive Performance of Chickens Subjected to Experimental Stress."** Dr. Naber stated in the initial remarks that antibiotics had served as growth stimulants to the chicks and had produced fairly consistent results. Agreement with the report from the University of Wisconsin was indicated in the remarks made. Data with laying hens has been less conclusive, more controversial and less consistent. Dr. Naber reviewed reports from various laboratories where laying birds have had

(Turn to CONFERENCE, page 32)

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CUBIC AIR ROOSTS — increase the bird capacity of existing buildings 3-fold. Create natural living area for birds; allow them to produce at top capacities.

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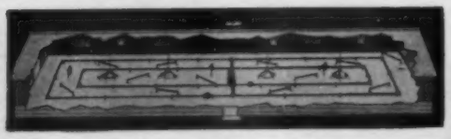
FOR BROILERS



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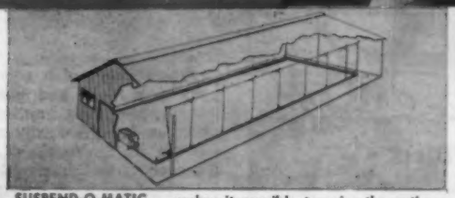

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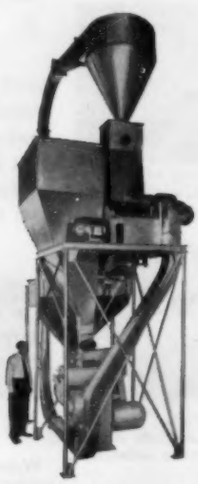

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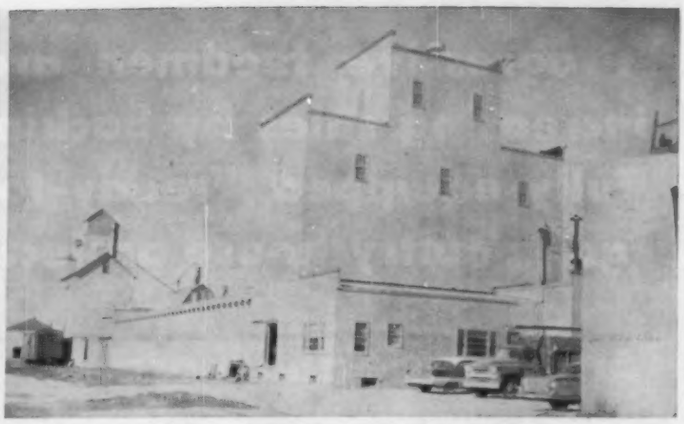


MILL EXTERIOR—This is the exterior of the Farmers Cooperative Grain & Stock Co., LeRoy, Minn. The mill is managed by Carl Smith.

Modernized Mill Attracts Many New Customers

By Al P. Nelson
Feedstuffs Special Writer

Installation of a new custom mill about a year ago has resulted in better service and an increase in customers for the Farmers Cooperative Grain & Stock Co., LeRoy, Minn., according to Carl Smith, manager.

"The new custom mill can process feed very quickly for farmers," says Mr. Smith. Formerly, the firm's customers had to wait a long time to get work done on busy days, but now the average mix can be turned out in 15 to 20 minutes, he says.

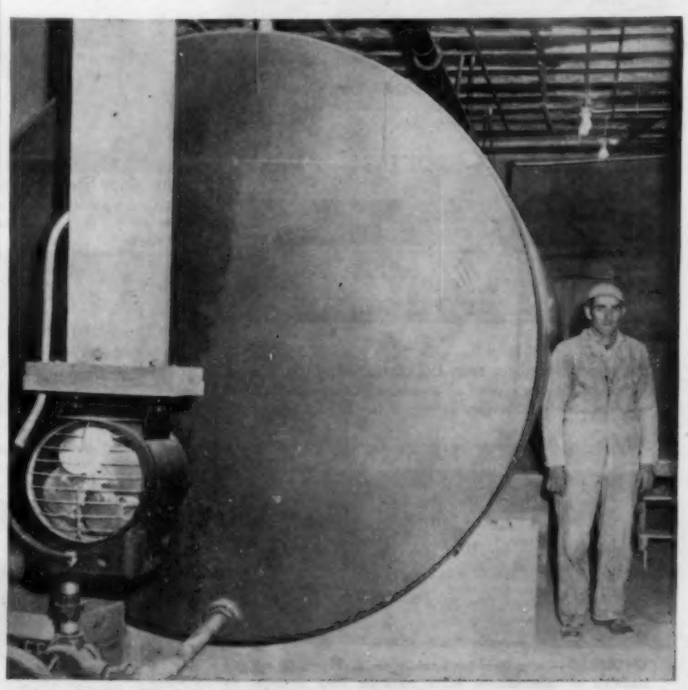
"The entire pattern of our custom mix business has been changed since we have the new mill," reports Mr. Smith. "We formerly had five men, and now we have two plus a truck driver. Also, our output of feed has doubled with the new mill.

"We still use the older mill for small grinding and mixing jobs, up to five bags or so. The old mill is equipped with a 24-in. Diamond attrition mill and a 120 cu. ft. capacity upright Sprout-Waldron mixer."

The new mill is 40 by 55 ft., three stories high and contains 17 bulk bins. The new warehouse is 40 by 120 ft., and it connects with an older warehouse on the same level. The warehouses have a storage capacity of 25 carloads of feed and grain.

Farmers Cooperative Grain & Stock Co. also makes a line of feeds, including a 40% hog feed and a poul-

WRITING UP ORDER—Carl Smith, manager of the Farmers Cooperative Grain & Stock Co., LeRoy, Minn., writes up an order for a customer.



MOLASSES STORAGE TANK—This is the molasses storage tank in the basement. Note the heater fan on the spot where molasses comes out of the tank.

GRAIN DUMPING—A mill employee operates the ropes to control the dumping of grain through the chutes and into the trailer.

VIEW OF MIXER—This is a view of one of the Strong-Scott mixers in the basement. There is another 2-ton horizontal mixer also located in the basement.

try starter, grower and egg mash. In addition, it also makes a line of feeds for two hatcheries in the area.

The cost of the new mill was $90,000.

Mill's Equipment

Most of the equipment in the new plant was furnished by Strong-Scott Mfg. Co., Minneapolis. It includes two 2-ton horizontal mixers, located in the basement, a 100 h.p. hammer mill with a 30 h.p. pneumatic system and a molasses pump, with 8,000 gal. storage. A heater fan is used on the basement molasses tank where the molasses is drawn out. The hoist is a Bender and the elevator leg is Universal Steel.

The firm handles Doughboy concentrates. About 130-140 tons of bulk ingredients are used in the plant monthly and are charged out at the bag price, states Mr. Smith.

"About 40% of our business is with hog farmers, 40% with dairy farmers and 20% with poultry raisers," says Mr. Smith. "With our new mill, we can grind ear corn fine, and this helps us get more dairy feed business."

The firm charges 10¢ cwt. for grinding and mixing if the customer asks the company to furnish concentrate and other ingredients. But the charge is 10¢ for grinding and 10¢ cwt. for mixing when the farmer furnishes his own ingredients, as a few do. If the custom mix patron buys ingredients from the firm, there is no charge for delivery.

The grind and mixing pattern has changed, too, since the new mill was erected. Farmers formerly brought in grain and waited for it to be ground and mixed and put back into the truck. Now farmers bring in their grain, dump it, and then go back home to do other work. They rely on the feed firm to bring the feed back to the farm when processed. A Pamco bulk truck of 6-ton capacity is used for many deliveries, Mr. Smith reports. The trend toward bulk feed in this area is strong, with a sizeable amount of the company's feed business being in bulk, Mr. Smith states.

This feed man says that many of the new custom mix patrons tell him that they like the new, efficient grind and mix service and are getting their work done at the mill instead of using farm hammer mills. In fact, some of the patrons have such mills but have shelved them, he says.

Gain New Accounts

"It does not take long for word of good grinding and mixing to spread through a community," states Mr. Smith. "If one farmer likes the quali-

REMOTE CONTROL—Carl Rempe, mill employee, operates a remote control for five quick change screens on the hammermill.

HAMMERMILL—Here in the basement the hammermill is located. This view shows the screen changing section mounted above the mill.

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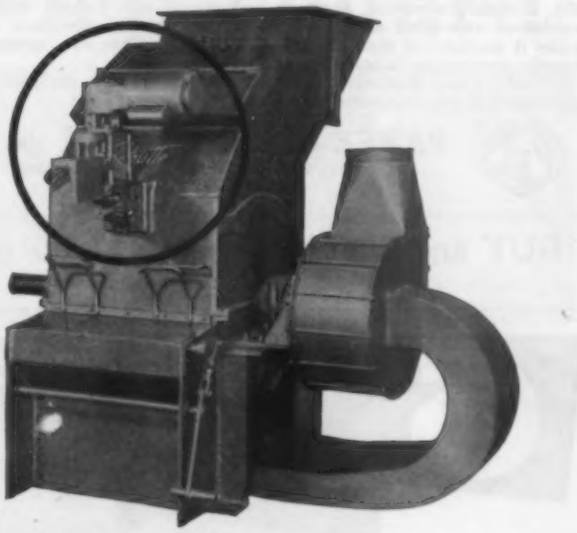

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ty of the grind he gets from us, he usually tells his neighbors. In that way we have gotten quite a few new accounts."

All screens in the grinding process are changed from a first floor location.

There are four large holding bins for grain ready to be ground. There are also four holding bins over the drive for completed feeds. The bin arrangement helps to speed the serving of customers.

The office and farm store section of the mill are heated electrically. A thermostat turns down the temperature to 50° at night, and pushes it up at 7 the next morning. A number of farm supply items such as gloves are displayed on a stand furnished by the Don Lea Co. Quite a few farmers buy gloves and other articles from this display arrangement, says Mr. Smith.

Mr. Smith reports that because farmers have less income this year than last, many of them are slower in paying for their feed purchases. Purchases at this mill are due on the 10th of the month. This means that the customer, depending on the date he buys, has from 11 to 40 days in which to pay his bill. A new credit policy going into effect at Farmers Cooperative Grain & Stock Co., provides for the paying of cash for feed if bills are not paid on the 10th of the month. When the delinquent account customer pays his due bill, then he will again have the privilege of paying for his purchases on the 10th of the following month.

"We've got to employ this policy for awhile," reports Mr. Smith, "in order to get accounts receivable down to an acceptable level. I think when customers get used to paying on this basis, they will like it better, too, for it will help them manage better financially."

Loans Requested for Broiler House Repair

ATLANTA, GA—The Farmers Home Administration in Atlanta has reported that 90 applications have been received for low interest loans to help broiler growers rebuild and repair broiler houses damaged by rough winter weather.

The applications came from 15 counties affected by the bad weather, which has cost broiler producers several million dollars in damages. Growers in Lumpkin County, one of the hardest hit counties, have filed 50 applications; 12 came from Dawson County and nine from Hall County.

Pullorum Testing of Broiler Supply Layers Down 25% From 1959

WASHINGTON—The number of chickens for supplying broiler hatching eggs tested for pullorum disease during March totaled 1,731,169 — down 25% from March, 1959. Testings July, 1959, through March, 1960, totaled 19,668,337—a decrease of 11% from the same period a year earlier, according to a U.S. Department of Agriculture report.

In the states for which comparisons are available, 368,163 chickens were tested during March for supplying eggs for egg-type chicks—down 14% from March, 1959. The testing of egg-type birds during July, 1959, through March, 1960, totaled 10,822,630 — down 13% from this period a year earlier.

Turkeys tested during March totaled 109,592—up 4% from March, 1959. The number of heavy white breeds tested totaled 55,280, compared with 39,628 in March, 1959—an increase of 39%. Other heavy breeds, mostly broadbreasted bronze, totaled 25,688—down 31% from a year earlier. Light breed birds tested totaled 28,624—practically the same as in March, 1959.

During the months July, 1959, through March, 1960, the number of turkeys tested totaled 3,248,159 — down 13% from the number tested during these months a year earlier. Heavy white breeds were up 2%, but testings of other heavy breeds were down 13%. The number of light breed turkeys tested was 38% less than the number tested during the period July, 1958, through March, 1959.

Dawe's Appoints New Territory Manager

CHICAGO—Clyde P. Dillehay has been named territory manager in southern California and Arizona for Dawe's Laboratories, Inc., it was announced by D. B. Kinkaid, vice president, marketing.

C. P. Dillehay

Mr. Dillehay is a chemical engineering graduate of the University of Denver and has eight years chemical sales experience, specializing in the agricultural field. He will report to Z. Z. Dworkin, Dawe's western region sales manager.

Equipment Installation

DES MOINES—A total of 68 recent installations of Hot Spot Detector, Inc., equipment have been reported by the Iowa firm.

The most installations for any one state were made in Nebraska, 17. Kansas followed with 8, then Texas with 7, Illinois, Indiana and Michigan, 4 each; Minnesota, Iowa, Missouri, Oklahoma and Ohio, 3 each; Utah, 2, and California, South Dakota, Maryland, Louisiana and North Dakota, 1 each. Two installations were made in Central America and one in Finland.

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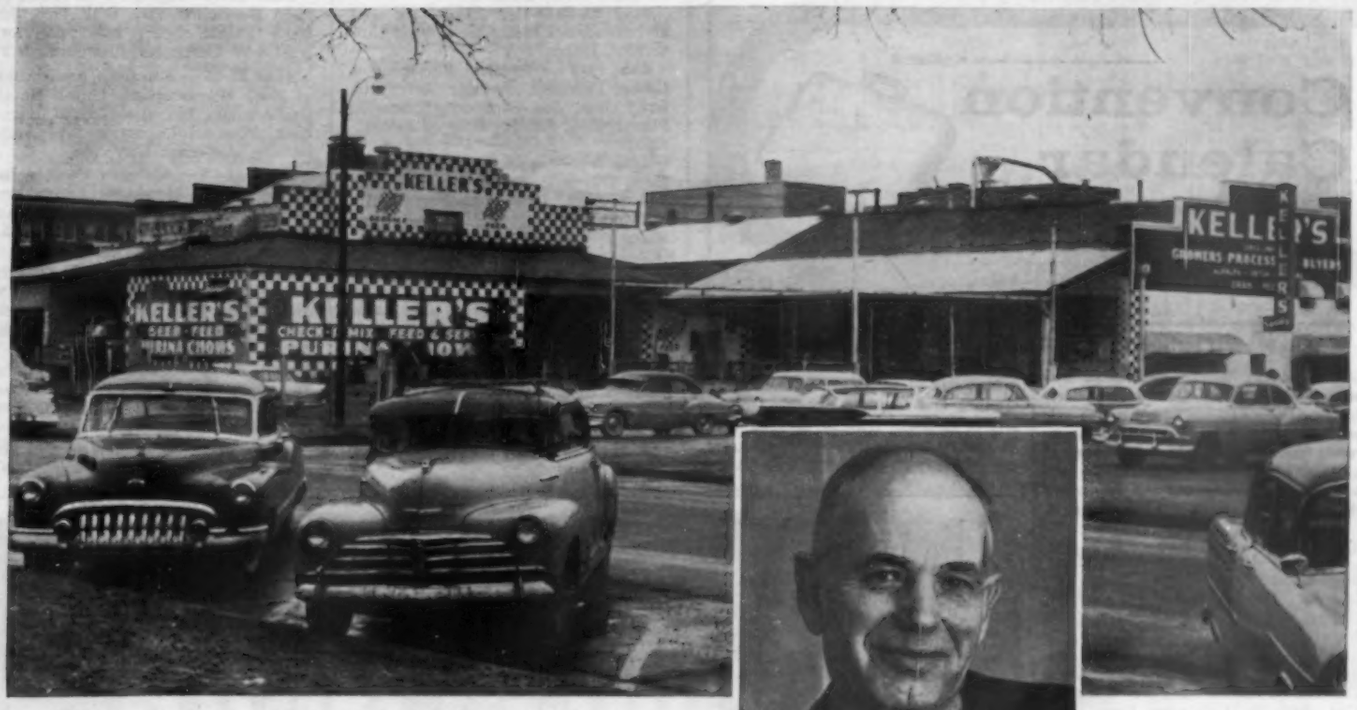


"We would not have developed the feed business without Purina's help," says Mr. Keller.

"We keep our services modern to serve modern agriculture"

—says Reuben Keller, Partner, Keller Seed Store, Shawnee, Okla.

"Our business was founded threescore years ago with a policy of keeping in step with advancements in order to serve progressive agriculture. This still is our policy because, over the years, we found that service is the best way to sell.

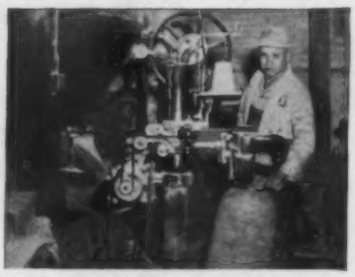
"We became Purina Dealers 15 years ago because we considered the step a means of serving our farmer friends by bringing them modern methods of producing milk, meat and eggs.

"The last 15 years have brought many advancements in livestock and poultry raising. We have benefited and our customers have profited from Purina leadership in this progress. We've kept our business in step by the installation of Check-R-Mixing and bulk delivery. We've helped our customers keep up-to-date by holding Purina-prepared meetings and by commercial-size demonstrations to prove Purina Programs to our customers.

"Such service *is* selling. Our sales volume is going up steadily."

* * * *

Keller Seed Store considers O. J. Strout a working member of the staff. The firm looks to Mr. Strout, Purina Salesman, for advice on feeding and management... for help in employee training... for aid in the conduct of meetings and demonstrations which take the Purina Programs to the farmers of Pottawatomie County.



Keller's Check-R-Mix department, operated by J. B. Linduff, has been serving the Shawnee area since 1947. Locally grown corn and milo and imported grains are balanced with Purina Concentrates.

A complete line of Purina Chows is stocked at Keller's to serve the diversified agriculture of Central Oklahoma. Dock Foreman Cecil Brock is using power equipment to fill a customer's order.

Keeping pace with modern agriculture, Keller's has bulk Chow bins with a capacity of 100 tons. Superintendent Carl McMahan watches the bulk truck being loaded by Stephen DeWitt and Narcissus Masquat.

PURINA... YOUR PARTNER IN SERVING ANIMAL AGRICULTURE

Convention Calendar

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

May 3-4—Independent Grain Warehousemens Assn; Hotel Fort Des Moines, Des Moines, Iowa; sec., James A. Potgeter, Steamboat Rock, Iowa.

May 7—Kansas Feeders Day; Animal Industries Bldg., Kansas State University, Manhattan; Dr. Rufus F. Cox, Animal Husbandry Dept.

June 24—Iowa Cattle Feeders Day; Iowa State University, Ames, Iowa; Dr. Wise Burroughs, Animal Husbandry Dept.

Aug. 22-23—American Soybean Assn. and National Soybean Processors Assn., joint conference and meeting; Hotel Peabody, Memphis, Tennessee; George M. Strayer, exec. vice pres., American Soybean Assn., Hudson, Iowa, and R. G. Houghtlin, pres., National Soybean Processors Assn., 3818 Board of Trade Bldg., Chicago 4, Ill.

Sept. 29—Vermont Feed Dealers and Manufacturers Assn.; University of Vermont, Burlington; sec., D. C. Henderson, Hills Agricultural Science Bldg.

Oct. 4-6—Northeastern Poultry Producers Council Exposition and Convention; War Memorial Auditorium, Syracuse, N.Y.; sec., Richard I. Ammon, 10 Rutgers Place, Trenton 8, N.J.

Nov. 14-15—Washington Animal Industry Conference; Skagit Valley College, Mount Vernon, Wash.; John G. Wilson, mgr., Washington State Feed Assn., 814 Second Ave. Bldg., Seattle 4.

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla., asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 1-5—American Association of Cereal Chemists; Morrison Hotel, Chicago; Association Office, 1955 University Ave., St. Paul 4, Minn.

May 3—Beef Cattle Field Day; Fort Reno Experiment Station, El Reno, Okla.

May 9-11—American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 9-11—Association of American Feed Control Officials; Sheraton-Blackstone Hotel, Chicago; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

May 11—South Carolina Poultry Festival; Batesburg-Leesville, S.C.; sec., W. E. Sanders, Batesburg.

May 15-16—Missouri Grain & Feed Assn.; Hotel Governor, Jefferson City; sec., D. A. Meinershagen, Higginsville.

May 15-17—National Cottonseed Products Assn.; Roosevelt Hotel, New Orleans, La.; sec., John F. Moloney, Box 5736, Memphis 4, Tenn.

May 16—Des Moines Feed & Grain Club Field Day; Hyperion Field Club and Veterans Memorial Auditorium; Les Bright, 1850 E. Euclid, Des Moines 13.

May 23-27—Southeastern Egg Quality and Grading School; University of Georgia, Athens; sponsored by Southeastern Poultry & Egg Assn., sec., Harold E. Ford, 235 East Ponce de Leon Ave., Decatur.

May 24-25—Egg Marketing and Merchandisers Institute; Cornell University, Ithaca, N.Y.

June 2-3—Poultry Servicemens Clinic; Purdue University, Lafayette, Ind.; chm., Joe W. Sicer, Extension Poultryman, Poultry Science Department.

June 5-9—Association of Food and Drug Officials; Baker Hotel, Dallas, Texas; sec., J. F. Lakey, Director, Division of Food and Drugs, Texas State Department of Health.

June 6-7—Central Retail Feed Assn.; Schroeder Hotel, Milwaukee, Wis.; sec., Eldon Roesler, 1712 W. St. Paul Ave., Milwaukee.

June 8-9—Pacific Northwest Grain Dealers Assn.; Davenport Hotel, Spokane, Wash.; sec., Merrill D. Sather, Peyton Bldg., Spokane.

June 9—Ohio Beef Cattle Day; Ohio Agricultural Experiment Station, Northwestern Substation, Hoytville.

June 12-14—Eastern Federation of Feed Merchants, Inc., Whiteface Inn, Lake Placid, N.Y.; exec. director, Austin W. Carpenter, Sherburne, N.Y.

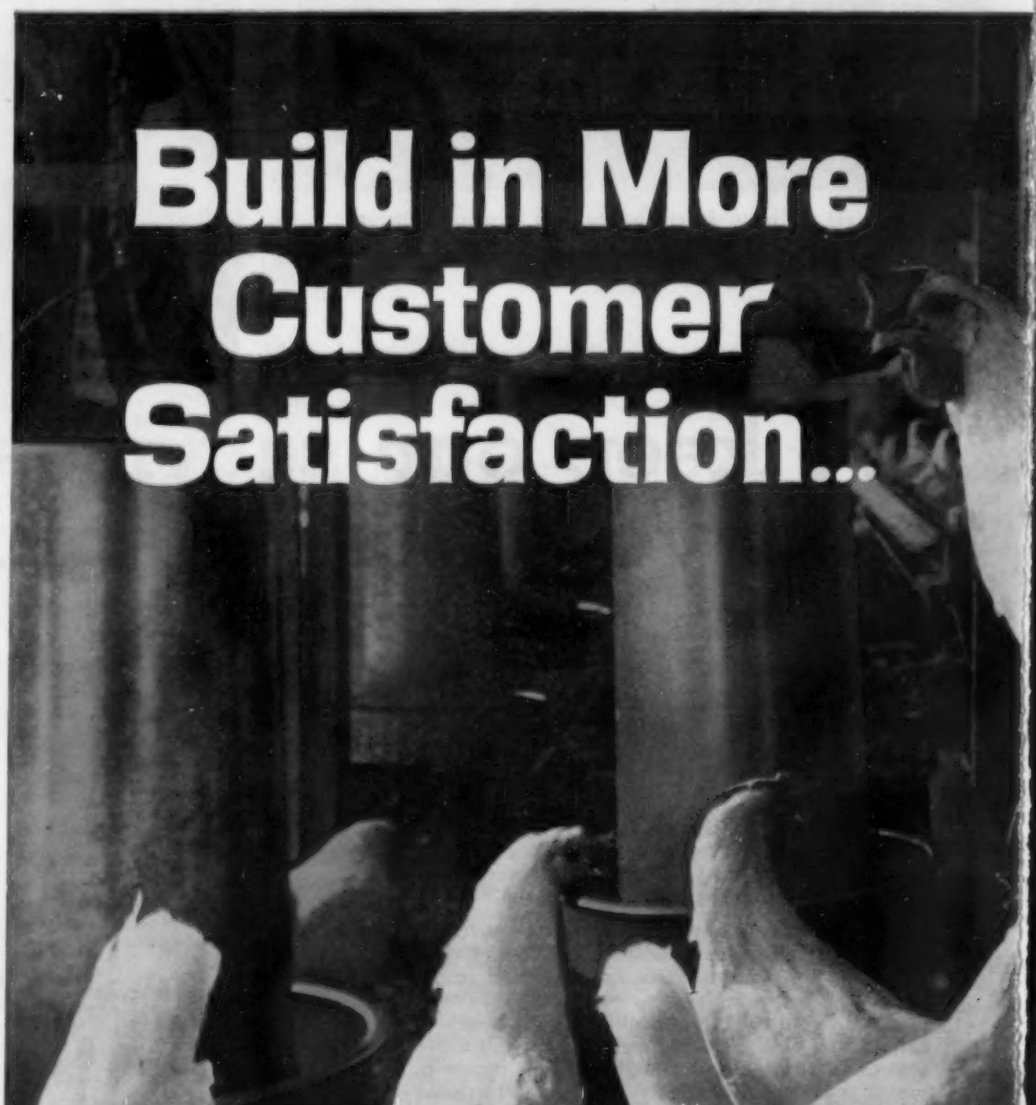
June 13-15—American Association of Feed Microscopists; Hilton Hotel, San Antonio, Texas; sec., G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo.

June 14-15—Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

June 14-17—NEPPCO Egg Quality School; Rutgers University, New Brunswick, N.J.; Dr. A. Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

June 16-18—Canadian Feed Manufacturers Assn.; Jasper Park, Alberta, Canada; chm., R. Hill, P. O. Box 39, Edmonton, Alberta.

June 17-18—Delmarva Chicken Festival; Selbyville, Delaware; Del-



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Your feeds work harder when fortified with Arsanilic Acid —94 lbs. does the work of 100 (on the average in Agr. College tests). That means lower feed costs per dozen eggs.

Your customer's hens work harder—lay 2 to 10% more eggs. In hot or cold weather, there are fewer laying slumps to knock down year-long profits. Birds are healthier. And healthier birds usually live longer—lay longer.

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Gives you a greater chance for a return on your vestment. An increase of only one-tenth of one per ce in feed efficiency pays for low-cost Arsanilic Acid. Or, j six extra eggs per 1,000 birds per day actually doubles yo investment!

If you don't have Arsanilic Acid in *all* your laying feed now is the time to recheck *all* the values of this low-co feed additive with your Abbott representative.

marva Poultry Industry, Inc., R.F.D. No. 2, Box 47, Georgetown.

June 19-21—Indiana Grain & Feed Dealers Assn.; Mid-Summer Convention; French Lick-Sheraton Hotel, French Lick; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

June 19-22—The American Dairy Science Assn.; Utah State University, Logan; sec., H. F. Judkins, 32 Ridgeway Circle, White Plains, N.Y.

June 20—All-Industry Poultry Day; Law Building Auditorium, University of Illinois, Urbana; S. F. Ridlen, Poultry Extension Specialist.

June 21-22 — Association of Southern Feed & Fertilizer Control Officials; Riverside Hotel, Gatlinburg, Tenn.; sec., Maurice B. Rowe, Department of Agriculture, 1119 State Office Bldg., Richmond 19, Va.

June 23-24—Northeastern Poultry Producers Council Business Management Conference for Egg and Poultry Marketing Cooperatives; Hotel Viking, Newport, Rhode Island; Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

June 24-26—Arkansas Poultry Festival; Little Rock; Arkansas Poultry Federation, P.O. Box 1446, Little Rock; chm., Jerry Hinshaw, Springdale.

July 19-21—American Poultry Congress and Exposition; Ellis Auditorium, Memphis, Tenn.; sponsored by American Poultry & Hatchery Federation; sec., Don M. Turnbull, 521 E. 63rd St., Kansas City 10, Mo.

July 23-26 — Georgia Feed Assn.; General Oglethorpe Hotel, Wilmington Island, Savannah; sec., Will L. Kinard, Suite 210, 3240 Peachtree Road Bldg., Atlanta 5, Ga.

July 29 — Ohio Sheep Day; Ohio Agricultural Experiment Station, Wooster.

Aug. 1-6—Feed Microscopy Short Course; Memorial Student Center, Texas A&M College, College Station; sponsored by Texas Agricultural Experiment Station; chm., Ewing E. Brown, State Chemist's Office, Texas Agricultural Experiment Station.

Aug. 2-5 — Poultry Science Assn.; University of California, Davis; sec., C. B. Ryan, Texas A&M College, College Station.

Aug. 11 — Michigan Swine Day; Michigan State University, East Lansing; Hugh E. Henderson, Extension Specialist, Animal Husbandry.

August 12 — Ohio Dairy Day; Ohio Agricultural Experiment Station, Wooster.

Aug. 14-18—Business Management Program, sponsored by Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce de Leon Ave., Decatur.

Aug. 18—Michigan Cattle Feeders Day; Michigan State University, East Lansing; Hugh E. Henderson, Extension Specialist, Animal Husbandry.

August 19—Ohio Swine Day; Ohio Agricultural Experiment Station, Wooster.

Aug. 22-23—Kentucky Feed Conference; Campbell House, Lexington; sponsored by the Kentucky Grain & Feed Assn. and University of Kentucky; sec., Jack Weber, P.O. Box 425, Lexington.

Aug. 25—Michigan Lamb Feeders Day; Michigan State University, East Lansing; Hugh E. Henderson, Extension Specialist, Animal Husbandry.

Aug. 29-Sept. 1 — Georgia Poultry Institute; Rock Eagle, Georgia; Milton Dendy, Extension Poultryman, College of Agriculture, University of Georgia, Athens.

Sept. 1-6 — International Congress on Nutrition; Sheraton-Park Hotel, Washington, D.C.; sponsored by International Union of Nutritional Sciences; sec., Milton O. Lee, 9650 Wisconsin Ave., Washington 14, D.C.

Sept. 14-15—Maryland Feed Servicemen's Conference; University of Maryland, College Park; chm., Wade H. Rice, Extension Service.

Sept. 14-16—National Feed Ingredients Assn.; Liggetts Holiday Inn, Burlington, Wis.; sec., Paul W. Bonewitz, 1023 Equitable Bldg., Des Moines, Iowa.

Sept. 21-22 — Marketing Seminar for Feed Manufacturers; Morrison Hotel, Chicago; Sales Executives Council, American Feed Manufacturers Assn., W. E. Glennon, president, 53 W. Jackson Blvd., Chicago.

Sept. 21-23 — Feed Production

CALENDAR FOR 1960-61

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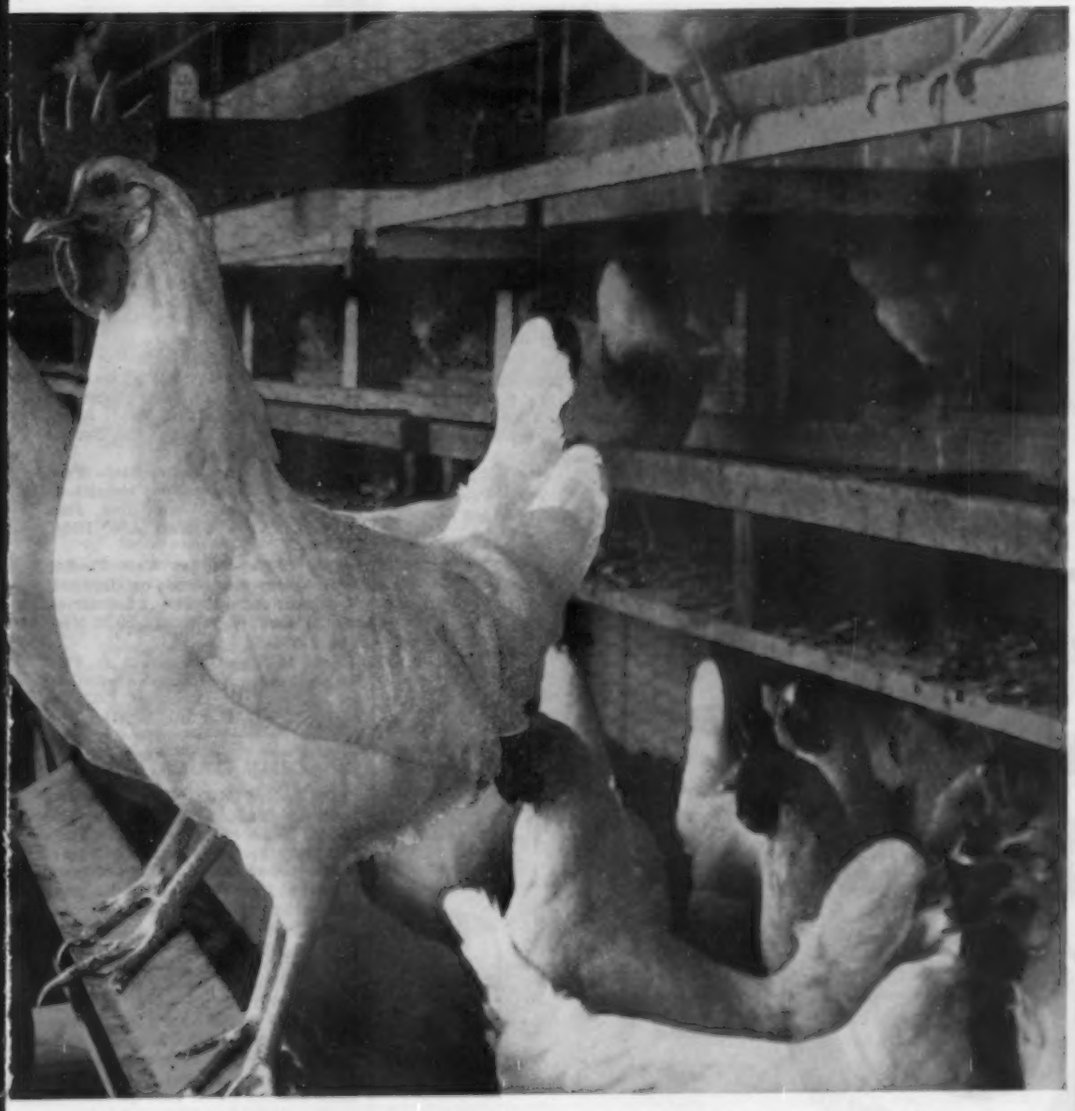

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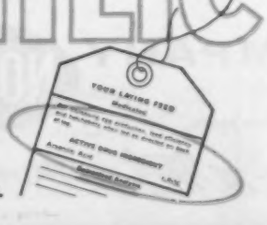

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School; Continental Hotel, Kansas City; sponsored by Feed Production School, Inc.; pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Sept. 22-23 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville; chm., Dr. E. L. Stephenson, Department of Animal Industry and Veterinary Science.

Oct. 2-4 — Poultry Industries of Louisiana, Inc.; Bellemont Motor Hotel, Baton Rouge; sec., Clyde Ingram, Knapp Hall, Louisiana State University, Baton Rouge.

Oct. 4-6 — Northeastern Poultry Producers Council; Exposition and Convention; Onondaga County War Memorial Bldg., Syracuse, N.Y.; Doris Endebrock, Exposition Mgr., 10 Rutgers Place, Trenton 8, N.J.

Oct. 5-7—Texas Nutrition Conference, Texas A&M College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 11-12—Virginia State Poultry Federation convention and trade show; Hotel Roanoke, Roanoke, Virginia; sec., J. Paul Williams, 615 East Franklin Street, Richmond 19.

Oct. 12-13 — Association of American Feed Control Officials Annual Meeting; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

Oct. 16-18—Kentucky Poultry Federation and Kentucky Poultry Improvement Assn.; Kentucky Hotel, Louisville; John W. Tuttle, field manager.

Oct. 16-20 — Business Management Program; sponsored by the Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce de Leon Ave., Decatur.

Oct. 17-18—California Animal Industry Conference; Fresno Memorial Auditorium, Fresno, Cal.; co-sponsored by California Hay, Grain & Feed Dealers Assn. and University of California; chm., Bert Maxwell, Nulaid Farmers Assn., Petaluma; association office; 1400 Tenth St., Sacramento 14.

Oct. 20-21—Cooperative G.L.F. Exchange, Inc.; stockholders annual meeting; Onondaga War Memorial Bldg., Syracuse, N.Y.

Oct. 27-28—National Swine Industry Conference; University of Kentucky, Lexington.

Oct. 28—Illinois Sheep Day; University of Illinois, Urbana; chm., Dr. U. S. Garrigus, Animal Science Dept.

Nov. 2-3—Kansas Poultry Assn.; Brookview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan.

Nov. 2-3—Illinois Feed Assn.-Illinois Poultry & Hatchery Federation, mory, Springfield; sec., IFA, Dean M. Clark, 141 W. Jackson Blvd., Chicago 4; sec., IPHF, Aubrey Harless, Shelbyville, Ill.

Nov. 3-4 — Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. H. H. Williams, Biochemistry and Nutrition Dept., Savage Hall, Cornell University, Ithaca, N.Y.

Nov. 9-12 — National Renderers Assn.; Statler-Hilton Hotel, Dallas, Texas; sec., Miss Jamie Fox, 30 N. LaSalle St., Chicago, Ill.

Nov. 16-17—Missouri Poultry Improvement Assn.; Hotel Continental, Kansas City; sec., E. M. Funk, Columbia, Missouri.

Nov. 16-18—Florida Nutrition Conference; University of Florida, Gainesville; chm., Dr. J. P. Feaster, Animal Husbandry and Nutrition Dept.

Nov. 25-26 — American Society of Animal Production; Hotel Sherman, Chicago, Ill.; sec., Clair E. Terrill, Animal Husbandry Research Division, Agricultural Research Center, Beltsville, Md.

1961

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.

Jan. 16-17—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 23-25—Farmers Grain Dealers Assn.; Civic Memorial Auditorium, Fargo, N.D.; sec., Lloyd C. Hanson, 513 Black Bldg., Fargo.

Jan. 31-Feb. 1 — Hoosier Turkey Trot; Purdue Memorial Union, Purdue University, Lafayette, Ind.; John N. Howell, Turkey Department, Indiana State Poultry Assn., Poultry Bldg., Purdue University.

Feb. 2-3—Oregon Animal Nutrition Conference; Withycomb Hall, Oregon State College, Corvallis.

Feb. 7-10—American Dehydrators Assn.; Jung Hotel, New Orleans, La.; executive vice president, Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 8-9—Pacific Northwest Feed Mill Production School; Hotel Leopold, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10 — Washington State Feed Assn., annual convention; Hotel Leopold, Bellingham, Wash.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10-11—Poultry Fact Finding Conference; sponsored by Institute of American Poultry Industries; pres., Harold M. Williams, 59 E. Madison, Chicago 2.

Feb. 19-21 — Ohio Grain & Feed Dealers Assn.; Neil House, Columbus; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington.

Eli Lilly Sales Up

INDIANAPOLIS — Consolidated net sales for the first three months of 1960 were estimated at $49.2 million and a second-quarter dividend of 50¢ a share on outstanding common stock has been declared by the board of directors of Eli Lilly & Co.

The $49.2 million net sales figure was an increase of 2% over sales during the same period last year. Consolidated net income for the first quarter was estimated at $6.8 million, equal to last year's income during the same period. Estimated earnings per share of common stock for the first three months were 85¢, the same amount as the 1959 quarter.

The dividend of 50¢ will be payable June 10 to shareholders of record May 20. This brings the total dividends for 1960 to $1, the same as during the first half of 1959.

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Proposed Bean Co-op Buys More Land

ST. CLOUD, MINN. — Acquisition of 16 more acres by Central Minnesota Processors, Inc., proposed co-op soybean processing plant here, has been announced by the firm.

Located three miles southwest of St. Cloud, the firm exercised options held on additional property to increase its holdings some 22 acres representing $50,000. The additional acreage will be used for storage and future expansion.

Central Minnesota recently announced renewed efforts to obtain financing for the building of a soybean processing plant on the former Liberty Granite Co. site.

"Members of the fund raising committee," said M. G. Wells, general manager of the co-op, "began recently to cover the initial 4-county area of Stearns, Sherburne, Meeker and Wright, calling on soybean producers to support the plant financially."

Financing of the proposed plant is by the sale of class "A" non-voting preferred stock on which dividends of up to 5% will be paid each year. Plans call for the new processing plant to be in operation by harvest time, officials reported.

Discuss Creep Feeding

CALISTOGA, CAL.—"Does Creep Feeding Pay?" This was the topic discussed at a recent meeting of the North Bay Wool Growers Assn. The panel members agreed that the value of creep feeding depends some on range conditions and other factors, but that it can be a profitable feeding system.

Panel members included Tule Lagomarsino, Santa Rosa; Art Wilcox, St. Helena, and Rod Shippey, farm advisor from Mendocino County.

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A Feed Promotion idea you can use to increase tonnage, get new customers, build sales programs around.

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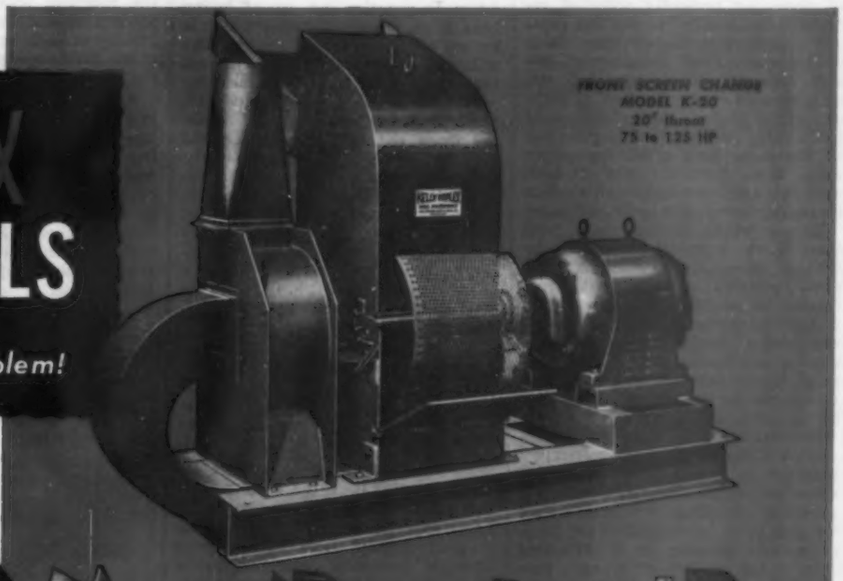


Whatever you may be looking for in a hammermill . . . you'll find the answer to your problem in the Kelly Duplex line.

There's a size, a type and a capacity to meet every need. Each machine is ruggedly constructed of extra heavy arc welded steel to assure low maintenance costs and long life . . . each gives you unsurpassed grinding efficiency and quick, easy screen change . . . and each is unconditionally guaranteed to grind more grain with the same power, conditions being equal, than any other hammermill on the market—or your money back.

We'll be glad to show you, through our free planning and layout service, how one of these machines can be "custom built" to give you maximum production at minimum cost. Mail the card today for literature and full details.

FRONT SCREEN CHANGE MODELS

MODEL KT 12" throat 30 to 50 HP

MODEL M 16" throat 40 to 75 HP

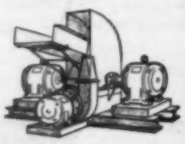
MODEL M-10 16" throat 75 to 100 HP

MODEL I 24" throat 75 to 125 HP

MULTI-MOTOR hammermills

All Kelly Duplex Hammermill models can also be furnished as either two-motor mills (one on blower and one on mill) or as three-motor mills (one on blower and two on mill).

These multi-motor hammermills let you regulate HP consumption to the job at hand, give you balanced power and "direct line" processing, reduce starting power requirements, and virtually eliminate downtime.



REMOTE SCREEN CHANGE HAMMERMILL MODEL D-20

20" throat. Furnished with motor on blower—and with either one or two motors on mill.

SIDE SCREEN CHANGE MODELS

MODEL LT 12" throat 20 to 50 HP

MODEL L 12" throat 20 to 50 HP

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The Duplex Mill & Mfg. Co.
Springfield, Ohio

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Influence of High Calcium Intake Upon Egg Production Factors—Including Shell Quality

"Egg shell quality can be improved by increasing calcium intake above presently accepted levels."

By Prof. C. F. Petersen
University of Idaho

The calcium requirements for satisfactory egg production and egg shell quality were determined several years ago and a number of changes have occurred in poultry husbandry which have resulted in the necessity of reviewing presently accepted requirements. Modern production rates are considerably higher than those of the past. Feed consumption per bird and per dozen eggs has decreased with modern rations of higher caloric content. Many strains of birds being used now are smaller but at the same time producing larger eggs. These factors would all indicate that calcium requirements might be greater today than in former years.

In past years, calcium needs have been most frequently provided by feeding whole oyster shell or some other suitable calcium grit free-choice, in addition to the limited amount of calcium in the mash. Modern poultry production methods, including automatic feeding and confined cage operations do not lend themselves to the old system of supplying calcium.

Maintaining good shell quality, always a major concern of the poultry industry, is even more serious with these present day forced production practices including the practice of keeping birds in production for longer periods of time. It is estimated that as high as 5% of all eggs produced are lost either in production or storage because of weak, thin shells.

Idaho Experiments

The University of Idaho poultry husbandry department has conducted three experiments to determine if increased calcium intake of high producing hens would improve shell quality without reducing egg production, feed efficiency or other production factors. The experiments, each of 40 weeks' duration, were conducted during a three-year period from 1956 through 1959.

The temperature of the laying house was maintained at 70-75° F. after the first 8-10 weeks of the first two experiments, whereas two temperature treatments, 55 and 75° F., were used in experiment 3.

Environmental temperature, in addition to genetics and age of laying hens, is an important factor which is known to influence shell quality. The influence of environmental temperature upon shell quality was first reported by Bennion and Warren (1). Since then, numerous studies including those of Miller et al. (2) and Warren and Schnepel (3) have shown that high temperature results in the production of eggs with thin shells. These workers have demonstrated that temperatures above 70° F. are detrimental to shell quality. More recently, Wilson (4) has shown that a change in temperature from 70 to 100° F. resulted in an immediate decrease in shell thickness.

High environmental temperature conditions were maintained in these experiments to increase the stress on shell quality and to increase the experimental period in which dietary treatments might influence shell quality.

EGG SHELL QUALITY IMPROVED—The major purpose of the three experiments was to determine if shell quality could be improved through increasing calcium intake levels. Several other nutritional variables were also included in these studies. These included calcium-phosphorus ratios, calcium forms, free-choice vs. controlled calcium consumption, as well as temperature variations previously noted.

Shell quality was measured by the specific gravity technique as outlined by Munro (5). Eggs produced during a 4-day period of alternate experimental weeks were tested. The range of specific gravity of the salt solutions used was 1.058 to 1.096 with the range being adjusted coincident with changes in the range of specific gravity of the eggs tested. The class interval of the solutions was .002 of a specific gravity unit. The specific gravity of the solutions was standardized each morning before the eggs were to be tested. Eggs were tested the morning following the day of production and the recorded specific gravity of each egg was the solution of the lowest specific gravity in which the egg just floated.

All 3 experiments were conducted in a well insulated cinder block house equipped with thermostatically controlled fan ventilation. The house contained eight pens of 40 pullets each which were of the Idaho experiment station strain of Single Comb White Leghorns. Supplementary heat was provided with four 1,250-watt electric heaters operated by separate thermostats.

EXPERIMENT 1: Two Levels of Calcium Tested—The first experiment was designed to study the influence

C. F. Petersen

AUTHOR—Prof. Petersen's major interest of research work at the University of Idaho, Moscow, has included studies of requirements for riboflavin, vitamin B_{12}, unidentified growth factors, calcium for egg production and energy requirements for egg production under varying laying house temperatures. He was employed by Albers Milling Co. at Seattle and Bellingham, Wash., after graduating from college and before serving with the army in World War II. Prof. Petersen joined the poultry department staff at the University of Idaho in 1944 and two years later was awarded an M.S. degree with a major in poultry nutrition and agricultural chemistry.

FIGURE 1. The average maximum and minimum laying house temperature used in experiment 1 is shown in the upper two lines. The average values for egg shell quality as measured by specific gravity are shown by weekly periods in the lower lines. Shell quality decreased with both calcium levels but less when 3.38% calcium was fed.

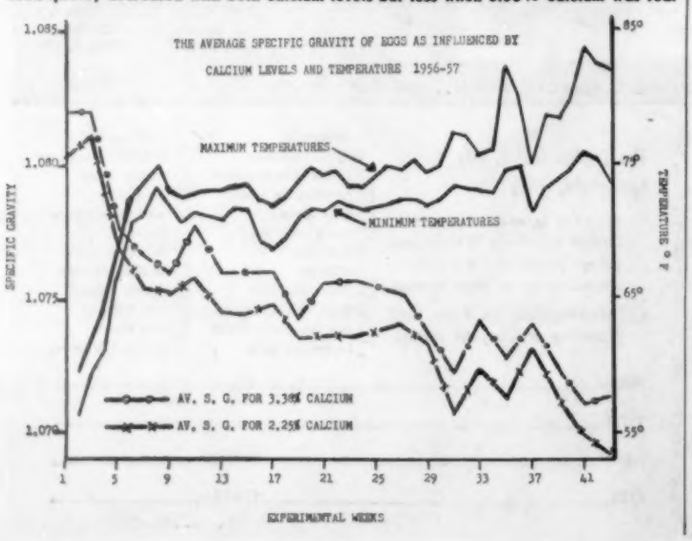

THE AVERAGE SPECIFIC GRAVITY OF EGGS AS INFLUENCED BY
CALCIUM LEVELS AND TEMPERATURE 1956-57
MAXIMUM TEMPERATURES
MINIMUM TEMPERATURES
AV. S. G. FOR 3.38% CALCIUM
AV. S. G. FOR 2.25% CALCIUM
SPECIFIC GRAVITY
TEMPERATURES ° F
EXPERIMENTAL WEEKS

FIGURE 2. Average maximum and minimum temperatures in experiment 2 (upper lines) and shell quality values for the four calcium intakes. The 3.75% calcium intake was superior to all other levels throughout the experiment.

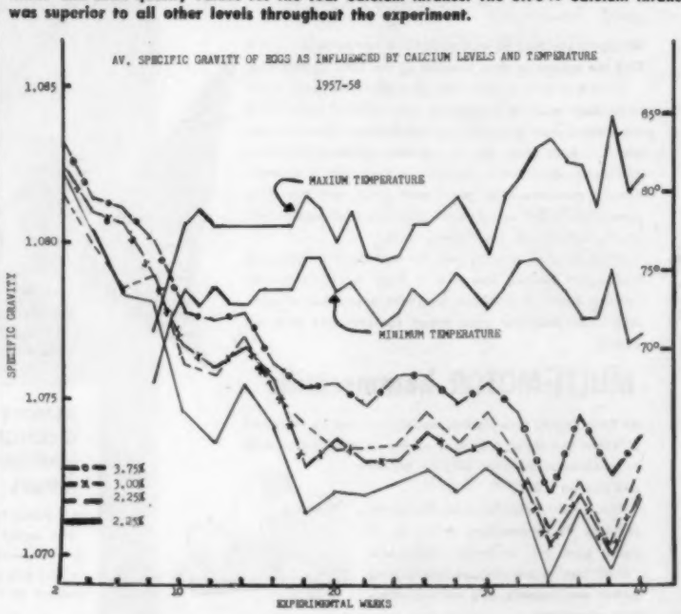


FIGURE 3. (Experiment 2) This figure shows the total calcium intake increase which occurred during the year when hens received whole shell fed free-choice.

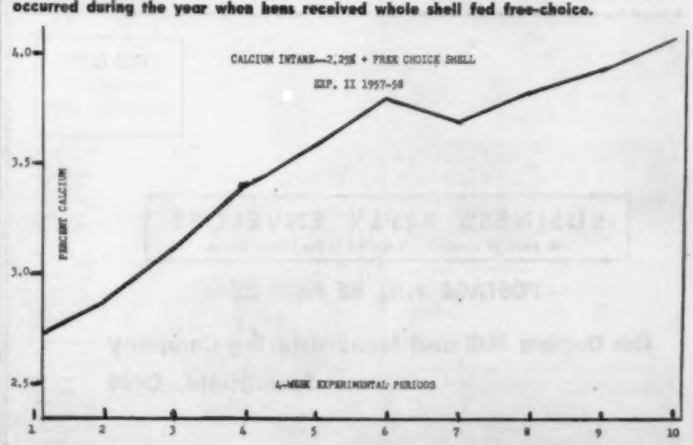
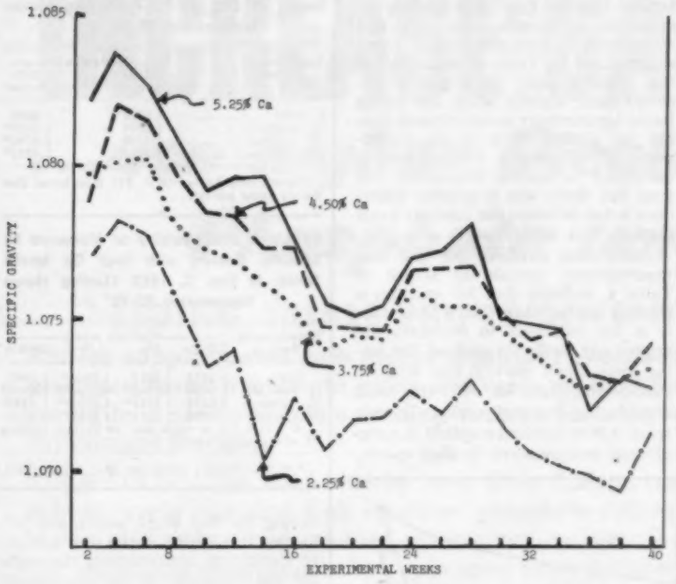


FIGURE 4. (Experiment 3) Average specific gravity values obtained with four calcium intakes are shown. The value for each calcium level is the average obtained from the two temperature treatments.



of two calcium levels, two calcium forms and two calcium-phosphorus ratios upon all production factors with special emphasis upon egg shell quality. The two calcium levels tested were 2.25 and 3.38%. The 2.25% level is the present recommended level as given by the National Research Council (6). The level of 3.38% calcium is based upon an increase of 50% above the level in the basal ration.

Oyster shell flour and hen-sized oyster shell were included as the two calcium forms. When used, whole oyster shell was included at 2.60% or an amount sufficient to supply one percent calcium in this treatment (see Table 2). Two phosphorus levels were fed with each calcium level to permit calcium-phosphorus ratios of 1 to .3 and 1 to .4. The experimental design permitted an analysis of four replicates for each calcium level, each calcium form and each calcium-phosphorus ratio.

TABLE 1. Basal Diet Containing 2.25% Ca Used in Three Experiments; 1957, 1958 and 1959

Ingredient	Per Cent
Wheat bran	5.00
Gr. barley	20.35
Gr. corn	50.00
Dehyd. alf. meal	2.50
H. fish meal	2.00
Meat scraps	5.00
Soybean meal (solvent)	9.50
Riboflavin (227 mg./lb.)	0.50
T. M. salt	0.50
A&D oil (3000 A, 600 D)	0.15
Dical phosphate	1.00
Oyster shell flour	3.50

Calculated composition: Protein 15.65%, Ca 2.26%, P 0.66%, calories (P.E.) 890.

Egg shell quality was significantly improved with the 3.38% calcium level when compared to the 2.25%. As shown in Figure 1, neither of these calcium levels prevented a drop in egg shell quality when the laying house temperature was raised during the eighth week of the experiment from approximately 50 to over 70° F. Values for both calcium intakes declined rapidly with the increase in laying house temperature. However, the hens fed the higher calcium intake were able to produce eggs with better shell quality as measured by specific gravity when the temperature was increased.

Following this there was a gradual decrease throughout the remainder of the experiment, with the 3.38% calcium level maintaining better shell quality. Table 3 summarizes this data by approximate 10-week periods which compare in general with fall, winter, spring and summer seasons.

There was no difference between calcium levels during the fall with cool laying house temperatures and young pullets, but the 3.38% calcium significantly improved shell quality in all other periods over that obtained with the basal ration.

Including a portion of the calcium as whole oyster shell in the ration did not improve shell quality with either calcium level. Varying calcium-phosphorus ratios also failed to improve egg shell quality. Other production factors including egg weight, body weight and mortality were quite uniform and did not appear to be influenced by the dietary treatments.

FIGURE 5. Average specific gravity values when 2.25% calcium was fed. Note both the low range in values and the adverse effect of high temperature (70-75° F.) on shell quality.

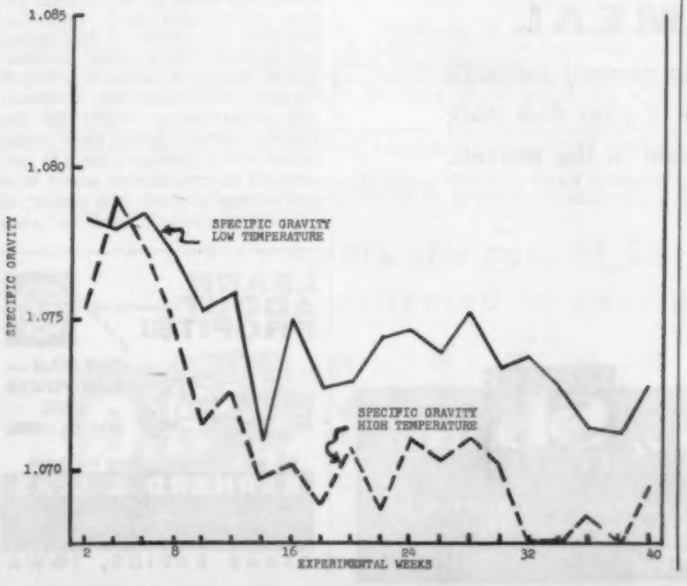


FIGURE 6. Average shell quality when 3.75% calcium was fed. The values are higher than shown in Figure 5 but note that high temperature still has a marked effect on shell quality.

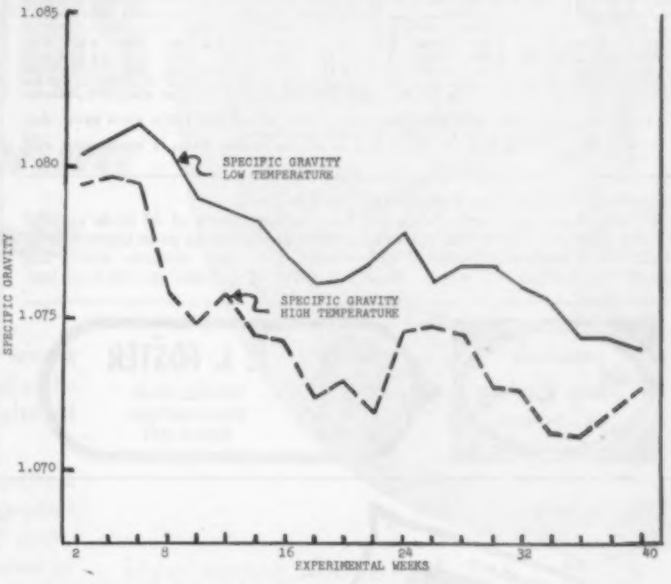
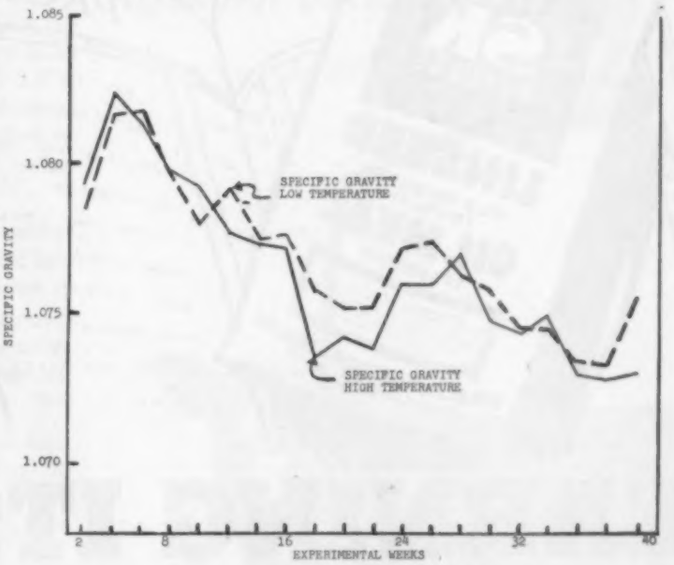


FIGURE 7. Average shell quality obtained with 4.5% calcium. The high temperature did not decrease shell quality.



EXPERIMENT 2: Four Calcium Intakes, Including Free-Choice Feeding of Whole Oyster Shell Tested—In the 1957-58 laying year the follow-

FIGURE 8. Average shell quality obtained with 5.25% calcium with two laying house temperatures.

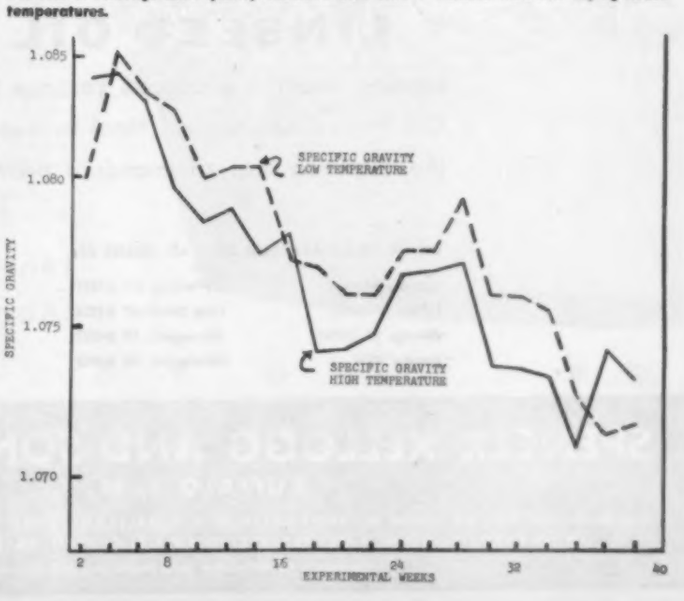


TABLE 2. Calcium Sources and Amounts Used to Obtain Various Ca Intake Levels Studied in 3 Experiments

Experiment No.	1-1957		2-1958				3-1959			
% Ca level studied....	2.25	3.38	2.25	3.00	3.75	2.25+	2.25	3.75	4.50	5.25
Dicalcium phosphate (%)	1.00*	2.00*	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.25
Oyster shell flour (%)..	3.50†	6.10†	3.50	5.60	7.40	3.50+	3.50	7.40	9.40	11.30

*Two calcium-phosphorus ratios were fed in Experiment 1. The amount of dicalcium phosphate added to each calcium intake for the higher phosphorus ratio was 2.00 and 3.70%, respectivaly.
†Additional lots of hens were fed these same Ca levels except that 2.60% whole oyster shell (1.0% Ca) replaced an equal amount of oyster shell flour.
+—This calcium intake level was fed to hens in addition to free access to whole oyster shell fed ad libitum.

ing calcium intakes were studied: (1) 2.25% calcium (basal diet—Table 1); (2) 3% calcium; (3) 3.75% calcium; (4) 2.25% calcium supplemented with free-choice feeding of whole clean oyster shell.

Duplicate pens of 40 birds each of the same breeding as in experiment 1 were fed each calcium level. The amount of calcium included to supply these levels again are shown in Table 2.

3.75% Calcium Superior to Lower Intake Levels—Egg shell quality as measured by specific gravity in this experiment is shown in Figure 2 and summarized in Table 4. As noted in the previous year, shell quality declined quite rapidly when the laying house temperature was increased during the eighth week of the experiment. Shell quality for all groups continued to decline throughout the year but there was a greater difference noted between the calcium levels used in this experiment.

The values obtained for the four experimental periods as shown in Table 4, indicate that 3% calcium is slightly better than 2.25%, but that it is not sufficient to maintain improved egg shells throughout the laying year. Shell quality was approximately the same as with the basal diet during the last period. In contrast, 3.75% calcium resulted in a significant improvement in shell quality during the first eight weeks, and following this period there was a highly significant improvement throughout the remainder of the experiment.

TABLE 3. Shell Quality as Measured by Specific Gravity with Two Ca Intake Levels in Exp. 1, 1957 (Laying House Temperature 70-75° F.)

Experimental Period	Calcium levels Avg. Spec. Grav. Values	
	2.25%	3.38%
I (fall)	1.0778	1.0788
II (winter)	1.0744	1.0759*
III (spring)	1.0730	1.0744*
IV (summer)	1.0710	1.0723*

Significantly better ($P < .01$) than basal diet during same period.

TABLE 4. Shell Quality as Measured by Specific Gravity with Four Ca Intake Levels in Exp. 2. 1958 (Laying House Temperature 70-75° F.)

Experimental Period	Calcium levels 2.25%	3%	3.75%	2.25%+
I (fall)	1.0797	1.0807	1.0814*	1.0797
II (winter)	1.0735	1.0752*	1.0764**	1.0754*
III (spring)	1.0722	1.0733*	1.0751**	1.0738*
IV (summer)	1.0705	1.0711	1.0732**	1.0717

+ 2.25% Ca in mash plus ad libitum feeding of whole oyster shell.

*,** Significantly different ($P < .05$) ($P < .01$).

Free-Choice Feeding of Whole Oyster Shell Compared—Hens fed a ration which contained 2.25% calcium plus free-choice feeding of whole oyster shell consumed an average of 3.63% calcium for the entire experimental year. The intake at the beginning of the year was 2.75% and this steadily increased until a total calcium intake of 4% was being consumed at the completion of the experiment (see Figure 3).

This increase in calcium intake is in reverse to the specific gravity data which declined progressively throughout the experiment. The intake with this method of feeding would indicate an attempt by the birds to meet the needs for calcium as the season progressed, but it is apparent from both Figure 2 and Table 4 that neither the gradual increase in calcium intake nor the average calcium consumed with this method of feeding was as effective in maintaining shell quality as lower calcium levels fed in the complete ration. The shell quality values obtained with free-choice calcium intake approximated those obtained with 3% calcium intake.

EXPERIMENT 3: Four Calcium Levels and Two Temperatures Compared—The influence of four calcium levels and two laying house temperatures using a 4:2 factorial design was studied. The calcium levels tested were 2.25, 3.75, 4.5 and 5.25%. The environmental temperature for one replicate of each calcium level was maintained at 75° F. and the other at approximately 55° F. The lower temperature treatment was maintained below 60° F. through the 26th experimental week. Following this, with the advent of late spring and summer, the average temperature of this series approached that of the high temperature lots. Isocaloric and isonitrogenous rations for the various calcium levels were maintained with adjustments made in percentages of corn, barley, wheat bran and soybean oil meal. The amount of calcium supplement used for each

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IOWA STATE[1] Tests conducted by Iowa State College researchers indicate cattle receiving high dicalcium phosphate rations graded higher at slaughter and returned greater margins over feed costs. The Iowa State report concludes . . . in some cases a higher level of total ration phosphorus, possibly as high as 0.3 percent, may well be needed.

PURDUE[2] According to a study conducted by Purdue University researchers, raising the phosphorus level in a corn-soy ration from 0.30 to 0.45 percent improved rate of gain 29% and feed efficiency 6.6% when fed to growing swine on ladino pasture. A further increase in phosphorus to 0.60% improved feed efficiency 5.7%, but failed to stimulate gains further. Several pigs on the corn-soy basal ration exhibited borderline phosphorus deficiency symptoms.

SOUTH CAROLINA[3] An animal deficient in phosphorus from either hereditary genetic defects, or because of prior consumption of a low phosphorus ration may bloat, regardless of the level of nutrition in the feed crop. Therefore, a critical phosphorus deficiency in ruminants should be corrected through feeding of dicalcium phosphate or other mineral phosphates or by feeding high phosphorus concentrated feeds prior to being placed on luscious legume pastures.

TEXAS[4] In feeding trials on the King Ranch in Texas, cows fed supplemental phosphorus weaned 39% more calves, averaging 50 pounds more weight per calf. In addition, feed lot operators in the Southwest have discovered that higher phosphorus levels result in faster gains.

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1. Different Kinds and Amounts of Phosphorus in Fattening Cattle Rations—Agricultural Extension Service, A. H. Leaflet 209; Wise Burroughs, Arthur Raun, Edmund Cheng, C. C. Culbertson, Iowa State College.
2. Phosphorus and Protein Levels for Growing-Finishing Swine on Legume Pasture —C. E. Jordan, J. H. Conrad, M. P. Plumlee; W. M. Beeson, A. H. 215, Purdue University.
3. Relation of Phosphorus Deficiency to Acute Bloat in Ruminants—H. P. Cooper, 69th Annual Report, South Carolina Agricultural Experiment Station, Clemson, S. C., May, 1957.
4. Methods of Supplying Phosphorus to Range Cattle in South Texas—Texas Agricultural Experiment Station, Bulletin 773; E. B. Reynolds, J. M. Jones, H. H. Jones, J. F. Fudge and R .J. Kleberg, Jr.

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TABLE 5. Shell Quality as Measured by Specific Gravity with Four Ca Intake Levels in Exp. 3, 1959. (Laying House Temperatures 55° and 75° with Each Ca Level.)

Experimental Period	Calcium levels 2.25%	3.75%	4.50%	5.25%
	Av. Specific Gravity for Both Temperatures			
I (fall)	1.0773	1.0797**	1.0808**	1.0825**
II (winter)	1.0723	1.0758**	1.0768**	1.0779**
III (spring)	1.0721	1.0750**	1.0757**	1.0763**
IV (summer)	1.0702	1.0731**	1.0737**	1.0730**

*, ** Significantly different ($P < .05$) ($P < .01$)

TABLE 6. Average Percent Egg Production Obtained in Three Experiments with Various Ca Intake Levels

Experiment No.	Calcium Intakes in Per Cent 2.25	2.25+	3.00	3.38	3.75	4.50	5.25
1-1957	71.3%			71.9			
2-1958	74.4	75.0	71.9		74.1		
3-1959	69.8				70.7	67.0	70.4

+ — 2.25% Ca in the mash plus ad libitum feeding of whole oyster shell.

calcium intake is shown in Table 2.

The average specific gravity values for the four seasonal periods obtained by feeding the four calcium levels without considering laying house temperature are present by periods in Table 5 and for each experimental week in Figure 4. Analysis of variance (Snedecor — 7) revealed a highly significant difference ($P < .01$) between calcium levels in all periods. Application of Duncan's (8) multiple range test showed that the 3.75 and 4.5% levels were significantly better than the basal and the 5.25% calcium was better than all other levels in periods 1 and 2. During periods 3 and 4 the three high levels were all significantly better than the basal but no differences existed within these levels.

Laying House Temperature Influences Calcium Needs—The results of this experiment indicate that calcium requirements vary with environmental temperature—the higher the temperature the more calcium needed to maintain equal egg shell quality.

The results of the temperature effect are shown in Figures 5, 6, 7 and 8. A study of Figure 5 shows that 2.25% calcium is inadequate in maintaining shell quality especially under high environmental conditions. Figure 6 shows that 3.75% calcium is not adequate with high temperature but that the shell quality values are approximately equal to higher calcium intakes with a house temperature of about 55° F. As shown in Figures 7 and 8, calcium intakes of 4.5-5.25% prevented the high temperature from decreasing egg shell quality and that these levels will result in better shells than 3.75% calcium when laying house temperatures are high.

EXCELLENT EGG PRODUCTION OBTAINED WITH HIGH CALCIUM INTAKE—Egg production data for the three experiments are shown in Table 6. Production was maintained at a high level during all years and with all levels of calcium fed. No significant differences occurred within experimental years. It would appear that laying hens can consume as much as 5% calcium, which requires over 12% mineral supplements in the diet, without adversely affecting egg production.

In contrast to this data, it was found that the laying house temperatures, as used in this study, did influence percent egg production. The average percent egg production of experiment 3 for the four lots of hens maintained at 75° F. was 70.68%, and the production of the four lots maintained during a major portion of the experiment at 55° F. was 68.28%. This difference was significant at the 5% level and agrees with previous work reported at this station (9).

HIGHER CALCIUM INCREASES FEED CONSUMPTION—The data obtained relative to average feed consumption as influenced by calcium intake is summarized in Table 7. It is apparent that more feed was consumed with calcium intakes of 3.75% and above. The increased consumption approximates the increase in crude mineral supplement required to raise the calcium level. The feeding of whole shell free-choice also resulted in similar feed consumption when this amount of shell is included. Therefore, the total actual feed intake would not appear to be increased, but the calcium more efficiently utilized. The 75° F. temperature resulted in a highly significant reduction in feed consumption compared to that obtained with 55° F. in experiment 3.

SUMMARY—Three experiments are reported summarizing studies to determine calcium requirements for maximum shell quality of high producing White Leghorn hens. These experiments were conducted over a three-year period, 1956-1959. Egg shell quality was measured by specific gravity technique, measurements being taken during alternate weeks throughout all experimental periods. The University of Idaho strain of White Leghorn hens in their first year of egg production was used in all experiments.

The major objective of the experiments was to determine whether increased calcium intakes, which is possible under our present all-mash feeding system, would prove beneficial in improving egg shell quality.

The influence of higher calcium intakes upon other production factors was also evaluated. The calcium intake of 2.25%, which is the recommended level established by the National Research Council, was used in all three experiments. Other calcium levels tested included 2.25% plus free-choice whole oyster shell, 3, 3.38,

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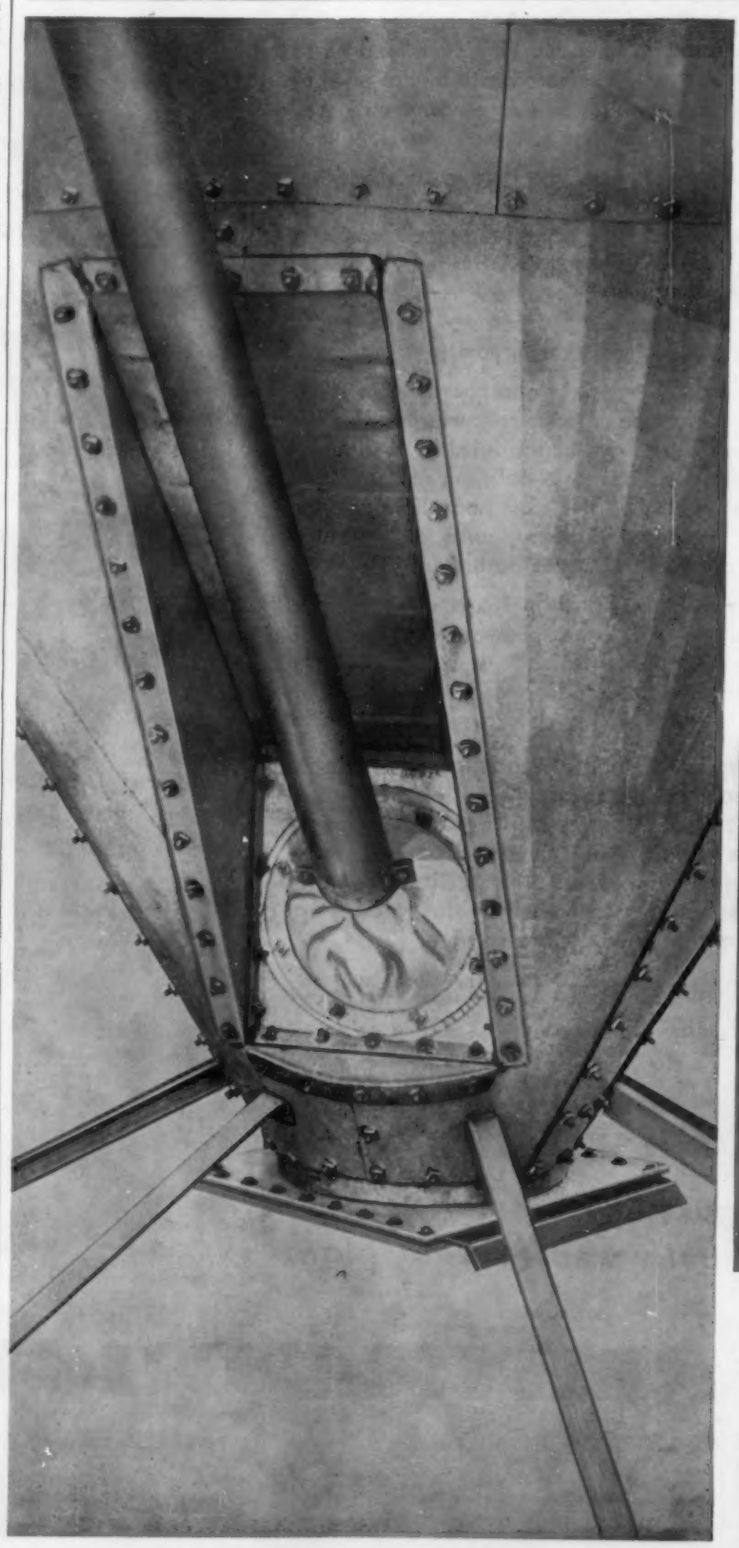

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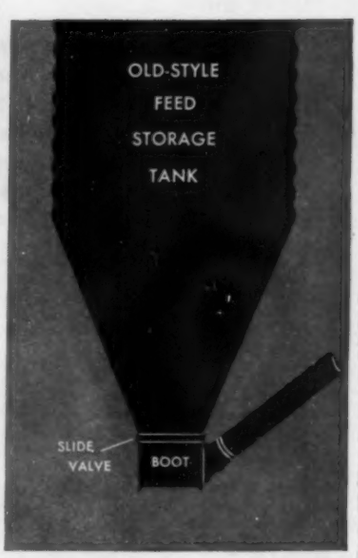

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TABLE 7. Average Pounds Feed Consumed per Bird per 28-Day Period as Influenced by Calcium Intake

Experiment No.	Calcium Intake in Per cent						
	2.25	2.25+	3.00	3.38	3.75	4.50	5.25
1-1957	7.40 lb.			7.50			
2-1958	7.24		7.38	7.24	7.47		
3-1959	7.03				7.39	7.38	7.53

+ — Feed consumption includes whole oyster shell consumed.

3.75, 4.5 and 5.25%. All levels tested resulted in improved shell quality when compared to the basal intake. Maximum shell quality appeared to be obtained with 3.75% calcium when birds were kept at an environmental temperature of 50-60° F. When the laying house temperature was maintained at 70-75°, calcium intakes of 4.5 and 5.25% resulted in improved shell quality.

From the results of these experiments, it would appear that the minimum calcium requirements should be 3.75% and that 4.5% may be more desirable for high environmental conditions.

These data are in good agreement with recently reported work of Titus (10) who used New Hampshire hens in an extensive study of calcium levels when birds were reared in cages.

The form in which the calcium was consumed did not appear to influence shell quality. Feeding of 1% of the calcium (2.60% whole oyster shell) as whole shell in a ration containing a total of 2.25% calcium did not influence shell quality. The feeding of whole oyster shell free-choice in addition to 2.25% calcium in the ration revealed some surprising results.

At the beginning of the laying year, the consumption of whole oyster shell was relatively low, the total calcium intake being 2.75%. As the laying year advanced, the consumption increased progressively until over 4% total calcium was being consumed. Shell quality during this period continued to decrease at a rate similar to constant calcium intakes.

Of even further interest was that, although the average calcium intake for this treatment for the year was 3.63%, the shell quality follows very closely to calcium intake of 3% in the ration. This would indicate that calcium supplied as whole shell, fed free-choice was not as efficiently utilized as shell flour or whole shell incorporated in the ration.

Egg shell quality can be improved by increasing the calcium intake above presently accepted levels and maintaining environmental temperatures below 70° F. However, other factors apparently associated with age will result in a gradual and continued decrease in shell quality during prolonged laying periods. It does not appear that this gradual decline in shell quality can be overcome through increased calcium intake.

E. C. Pleschner

JOINS DREW FIRM—E. C. (Ernie) Pleschner has joined E. F. Drew & Co., Inc., as sales supervisor of the agricultural division on the West Coast, with headquarters at Lindsay, Cal. Mr. Pleschner was formerly associated with the West Coast division of McKesson & Robbins in Los Angeles. The new appointment was announced by J. M. Hagerty, general manager of Pacific Coast operations for the Drew Malaga oil products division.

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DES MOINES—Foxbilt, Inc., conducted a sales training school during the last week of March for 70 new members of the Foxbilt Feeds sales staff.

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Study Grain Buying Laws in Canada

WINNIPEG—For some time there has been dissatisfaction over regulations, and their enforcement, covering the purchase of feed grains by feed mills in western Canada, according to the Alberta Wheat Pool in a weekly bulletin. The bulletin noted that the House of Commons recently gave approval to a resolution introduced by Trade Minister Churchill calling for a study of the problem by the Commons' Agricultural Committee.

In introducing the resolution, Mr. Churchill outlined the problem as he sees it. He said that existing statutes, both provincial and dominion, make all feed plants subject to quota regulations. The plants which choose to have agreements with the Canadian Wheat Board, making them agents of the board, are required by such agreements to buy from producers at board prices and to issue producers' certificates.

There are two types of feed plants. One type of operation has elected to have an agreement with the board and conforms to the CWB Act and provincial legislation. The other type does not enter into an agreement with the board. "This system does not operate in strict conformity with the Canadian Wheat Board Act and provincial legislation. Under the latter type of operation, feed mills may acquire feed grains at discount under board initial payments," said Mr. Churchill.

The feed mills which operate under an agreement and in conformity with the Canadian Wheat Board Act and provincial legislation claim to be at a disadvantage, Mr. Churchill explained. They have repeatedly brought their case to the attention of the board and the government.

"It's time you started stacking 'em against the other side, Newton."

Of 182 feed plants in western Canada, 60 operators have agreements with the board while 122 do not. In Alberta, the total with agreements is 29, and the total without is 82.

In 1958, the three provincial divisions of the Canadian Feed Manufacturers' Association asked that feed dealers be allowed to buy their grain requirements from producers "free of quota restrictions, and at prevailing prices on the basis of supply and demand, for processing and resale within the province in which the grain is grown."

The matter was referred to the Advisory Committee of the Wheat Board (representatives of prairie farm organizations) which decided existing regulations were satisfactory. Then, a year ago, the Agricultural Committee in the Commons took a look at the matter and recommended that the question of feed mills be clarified and, if necessary, new legislation introduced. This, he said, is the background of the situation.

In short, the feed mill operators would like to be able to legally purchase their feed grains wherever, and at whatever prices, they find most satisfactory.

Mills operating under agreement with the board must conform to the regulations. Other mills have been free to buy their grain wherever they wished because the provincial governments have refused to enforce the legislation.

Interested parties will have the opportunity to appear before the committee and present their case. The committee will be authorized to call anyone it desires, such as Wheat Board officials, representatives of the pools, farm organizations, feed plants and individual farmers. The Commons' committee will then have to decide whether it is desirable to implement the feed manufacturers' proposals. It will report its recommendations to the House of Commons, Mr. Churchill said.

Hazen Argue, CCF leader, said, "The feed dealers want to escape the provisions of the Wheat Board Act so that they can get their grain at prices lower than the Wheat Board marketing prices. If the changes requested were made, it would mean a direct bonus from the grain producers to the feed manufacturers."

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And these feeds had not been developed by chance. Skilled nutritionists spent years studying feed ingredients and nutritive requirements of livestock and poultry. The knowledge they gained led to the formulation of more efficient feeds year after year.

Modern feeds scientifically balanced

Feed companies have transformed the typical, crude feed supplement of the early 20's – such as the old "trinity mixture" for swine which consisted only of tankage, chopped alfalfa hay and linseed meal – into today's productive feed with its multitude of highly-refined ingredients.

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They've blended in calcium and phosphorous for *bone-formation*, salt for *water balance*, trace minerals which are necessary elements in important *body compounds*. They've used natural ingredients like fish solubles, whey, dehydrated alfalfa and distillers by-products which are high in *unidentified growth factors*. They've sought new sources of lower-cost, chemically-produced vitamins A, D, E, K and B-complex which act as catalysts for life processes and are vital for *appetite*, *growth* and *normal development*.

If you could see the instructions which mixers follow in making a modern feed, you'd easily understand why it's called a "formula" feed. It's *made to a formula*, and that formula may often list as many as 15 to 20 different ingredients. The precise, *needed* amount of each ingredient has been carefully predetermined by repeated laboratory and field trials.

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Yes...good formula feeds have long been a boon to livestock and poultry growers. And you might buy one today that contained *none* of the modern "drug additives" and still see good results on your farm.

But you would be missing something, and risking something, too. And *your* feed manufacturer would be the first to tell you so. Your feed manufacturer has most likely anticipated your needs by incorporating additives in his feeds. He's looking out for your welfare and doesn't want you to run the risk of sudden devastating disease wiping out your profits.

Progressive feed manufacturers never stay satisfied with their formulas. They keep improving them. They investigate promising new additives. They choose those they find best.

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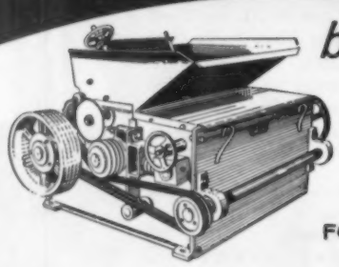

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Trends in Phosphorus for Swine

"Supplementing swine diets with inorganic sources is more necessary now than before."

By Dr. W. M. Beeson
Purdue University

Phosphorus is one of the most important mineral elements that has been shown to be essential for life because it enters into every cell and fluid of the animal body. About 80-86% of the body phosphorus occurs in the bone, 10% in the muscles, 1% in the nervous tissue and the remainder distributed in other body tissues.

Supplementing swine diets with inorganic sources of phosphorus is more necessary today than in the past because the pattern of swine feeding has switched from the use of animal by-products, which are rich in phosphorus, to essentially a corn-soybean meal diet which is deficient in phosphorus.

Swine rations high in corn and soybean oil meal and low in animal by-products will usually contain .25-.35% phosphorus while the requirement ranges from .4 to .6% phosphorus. Besides the low phosphorus content of such rations, it is also important to realize that about 50% of the phosphorus which is contained in them is in the form of phytin phosphorus, which is practically unavailable to swine. Thus, it is quite obvious that swine rations built principally from corn and soybean oil meal require phosphorus supplementation for optimum results for growth, fattening and reproduction.

Certain basic considerations are necessary to assure the daily needs and proper utilization of phosphorus for swine. The following should be considered:

1. Adequate level of phosphorus to meet daily requirement according to stage of growth or reproduction (see requirement Table 1).
2. Proper calcium to phosphorus ratio—breeding stock 1.5:1 and growing-finishing 1.25:1 (see discussion).
3. Ample amount of vitamin D—60 to 100 I.U. of vitamin D per pound of feed—or adequate sunshine.
4. Available source of phosphorus. Phosphorus supplements vary in availability (see discussion).
5. Avoid feeding excess amounts of aluminum, beryllium or iron. These elements interfere with phosphorus utilization.

PHOSPHORUS REQUIREMENT—A recent review of the literature on the phosphorus requirements of swine by the subcommittee on swine nutrition of the National Research Council (1) has revealed that the levels of phosphorus required to meet the daily needs for swine of different ages and different stages of the life cycle are as shown in Table 1.

A review of the requirements given in Table 1 indicates rather clearly that excepting for young growing pigs (10-50 lb. weight), the phosphorus requirement of swine of all ages for growth, finishing and reproduction can be met by supplying .4% phosphorus in the total ration. The levels recommended by the NRC are not excessive and should be followed carefully in compounding swine rations. The margin of safety in furnishing adequate amounts of phosphorus is very narrow. Plumlee et al. (2) have shown that the minimal phosphorus level for growing swine is .3% and that pigs will not gain at an optimal rate unless the phosphorus present is highly available. At least one half of the pigs fed a diet containing .3% phosphorus developed skeletal weaknesses during the experiment.

CALCIUM-PHOSPHORUS RATIO—In a series of experiments by Bohstedt et al. (3) with pigs on pasture and in dry lot, the most efficient

TABLE 1. Phosphorus Requirement of Swine

Liveweight Lb.	Phosphorus % of Ration
Growing-Finishing	
10	.60
25	.50
50	.50
100	.40
150	.40
200	.40
Bred and Lactating Gilts and Sows	
300	.40
500	.40
Breeding Boars	
300	.40
500	.40

EDITOR'S NOTE: This discussion by Dr. Beeson is one of seven copyrighted papers which comprise a new booklet, "Trends in Phosphorus," published by the feed phosphorus sales department of Smith-Douglass Co., Inc., Norfolk, Va.

In addition to Dr. Beeson's paper on phosphorus for swine, the booklet includes "trend" articles on phosphorus: For laying hens, by Dr. H. R. Bird, University of Wisconsin; in broiler rations, by Henry L. Fuller, University of Georgia; for turkeys, ducks, geese, pheasants and quail, by Dr. Paul E. Waibel, University of Minnesota; for beef cattle and sheep, by Dr. Bruce R. Taylor and Dr. Farris Hubbert, Jr., University of Arizona; for dairy cattle, by Dr. J. K. Loosli, Cornell University, and for pets, by Dr. Phillip J. Schaible, Michigan State University. The collection of papers was edited by Dr. Spencer H. Morrison, director, Agricon, Clinton, Iowa. Also, he has prepared a review of the articles.

Henry Highton, Smith-Douglass Co., illustrates the growing use of phosphorus feed supplements with a report that in 1951 it was estimated that 470,000 tons of phosphorus feed supplements were consumed domestically, and that consumption reached 650,000 tons in 1956. "Through utilization of the best available source data, it is estimated that 900,000 tons will be available and consumed in 1960," Mr. Highton notes.

The estimated available tonnage of dicalcium phosphate this year will be 350,000 tons, according to Mr. Highton. This would amount to a 75% increase over the 1956 tonnage of 200,000. Defluorinated phosphate tonnage this year (an estimated 300,000 tons) is expected to be 50% greater than it was four years ago. The anticipated volume gain from 1956 for colloidal phosphate is 20%—from 50,000 tons to 60,000 tons. Mr. Highton reports that supplies of imported rock phosphate will remain steady at around 120,000 tons, steamed bone meal may drop 12% to 65,000 tons and other phosphorus feed supplements are expected to be reduced in volume by 16.7%, comparing 1960 estimates with the tonnage recorded in 1956.

Mr. Highton notes a trend in the usage level of phosphorus feed supplements. "The projected 1960 level of per cent phosphorus supplementation of 2.14% reresents a 49.7% increase over 1951 and 17.6% over 1956," he says. A table Mr. Highton prepared shows that the per cent level of phosphorus supplementation in 1956 was 1.82 and in 1951 it was 1.43.

calcium-phosphorus ratio in the grain mixture was 1.25:1. Evidence is accumulating to indicate that reducing the calcium level in swine rations and thereby narrowing the Ca-P ratio is beneficial from the standpoint of gain and feed efficiency.

Hoefer et al. (4) recently reported that reducing the calcium level in growing-finishing swine rations from .7% to .5% improved growth rate and feed efficiency. Also, excellent results were obtained with calcium levels as low as .3% with a Ca-P ratio of .65:1. This research indicated that a Ca-P ratio of 1.24:1 was preferable to a wider ratio of 1.88:1.

It is also well known that feeding excessive amounts of calcium in the ration (1-1.4%) and thus widening the Ca-P ratio will increase the incidence of swine parakeratosis and interfere with the utilization of zinc (5, 6, 7).

The calcium-phosphorus ratios for swine of various ages recommended by the subcommittee on swine nutrition (1) of the National Research Council are as follows:

Liveweight, lb.	Ca-P Ratio
Growing-Finishing	
10	1.17:1
25-50	1.30:1
100-200	1.25:1
Bred and Lactating Gilts and Sows	
300	1.5:1
500	1.5:1
Breeding Boars	
300	1.5:1
500	1.5:1

AVAILABILITY OF PHOSPHORUS FROM VARIOUS PHOSPHATE SUPPLEMENTS—At the beginning of the century, bonemeal was used extensively to supply additional phosphorus to swine rations. As the demand for phosphorus supplements increased, many new sources of inorganic phosphorus were introduced—namely, dicalcium phosphate, monocalcium phosphate, defluorinated phosphate, phosphoric acid, Curacao Island phosphate, soft phosphate with colloidal clay and many others.

Differences in availability of inorganic phosphorus are attributable in large part to the variation in the proportion of pyrophosphate, metaphosphate and orthophosphate.

In a series of studies with either rats or chicks, Ellis et al. (8) and Bird et al. (9) have shown that the calcium metaphosphate and calcium pyrophosphate are less available than the ortho form of phosphate.

In other studies also using rats or chicks, Barrentine, Maynard and Loosli (10), Cabell et al. (11) and Gillis, Norris and Heuser (12, 13) revealed that while most pyro- and metaphosphates were poorly utilized or completely unavailable, all orthophosphates such as bonemeal, mono-, di-, and tricalcium phosphate were excellent sources of phosphorus for animal feeding. Since the phosphorus exists in different chemical form in each supplement, it is necessary then to evaluate these supplements on the basis of the amount of phosphorus that is available for metabolic use by swine.

Plumlee et al. (2) made an extensive study to determine the comparative availability of phosphorus in different supplements. The test rations were designed so that a large percentage of the phosphorus in the semi-purified diet was supplied by the supplement being tested. The basal diet contained only .035% phosphorus, and the phosphate being tested furnished about .265% phosphorus to make a total of .30%.

Two criteria are essential for properly evaluating phosphorus supplements: (1) A basal diet low in phosphorus (.1% or less) but adequate in other essential nutrients and (2) feeding a critical, borderline level of phosphorus to meet the requirement (.3% P for swine). Some of the pertinent results from this research (2) are summarized in Table 2.

A summary of the six experiments (2) indicated that the various phosphorus supplements ranked in the following order: Dicalcium phosphate, monocalcium phosphate and phosphoric acid about equal, followed by steamed bonemeal and defluorinated phosphate, then Curacao Island phosphate, and finally, soft phosphate with colloidal clay the poorest.

TABLE 2. Comparison of Phosphorus Supplements

Supplement*	Daily Gain	Daily Feed	Feed Per Lb. Gain	Blood Phos. mg/100 ml.
	Experiment IV			
Di-Cal.	1.38	3.16	2.28	7.7
Mono-Cal.	1.36	3.11	2.28	8.2
Bonemeal	1.37	3.21	2.35	7.3
Curacao	1.24	2.70	2.18	6.7
Soft Phosphate	0.84**	2.28**	2.72**	5.3**
	Experiment V			
Di-Cal.	1.02	2.54	2.51	6.8
H_3PO_4	1.10	2.82	2.57	8.3

* Full name of supplements used were dicalcium phosphate, monocalcium phosphate, steamed bonemeal, Curacao Island phosphate, soft phosphate with colloidal clay and phosphoric acid.

** Significant at the 1% level.

In a study comparing different phosphorus sources for growing-finishing swine, Chapman et al. (14) found that the feeding of soft phosphate with colloidal clay significantly decreased rate of gain, feed efficiency and breaking strength of femurs as compared with bonemeal or dicalcium phosphate.

Similar results were obtained by Aldinger et al. (15) in which they observed that increasing the levels of colloidal phosphate from 0 to 4% in a corn-soybean ration (0-100% of the supplemental phosphorus) resulted in a statistically significant linear decrease in rate of gain and feed efficiency. Also, there was an indication of a factor or factors other than fluoride in the colloidal phosphate which contributed to the depressing effect of colloidal phosphate on gains and feed conversion.

Elmslie, Caldwell and Nesbitt (16), using semi-practical low phosphorus basal rations, reported that dicalcium phosphate, bonemeal, Curacao Island phosphate and defluorinated phosphate were substantially equal for swine. However, soft phosphate with colloidal clay was significantly inferior to other sources in promoting growth.

In contrast, Gobble et al. (17) reported satisfactory results from using colloidal phosphate in a ration of growing-finishing swine at levels of .5% for periods up to 180 days, 1% for periods up to 131 days, 2% for periods up to 161 days and 4% for periods up to 117 days. In a majority of the Pennsylvania tests (17), the corn-soybean meal basal ration contained .32% phosphorus which is too high a level of phosphorus to be used in a basal diet for evaluating the availability of phosphorus in a supplement.

SUPPLEMENTING A CORN-SOY RATION WITH PHOSPHORUS — The average corn-soybean meal ration with 16% protein properly fortified with minerals (excepting phosphorus), vitamins and antibiotics contains about .3% phosphorus. Research at Purdue (2, 18) has shown that the daily gain and feed efficiency of pigs can be significantly improved by raising the phosphorus level from .3 to .45% either in dry lot or on ladino clover pasture. A brief summary of these results is given in Tables 3 and 4.

Pigs on the corn-soybean meal ration (16% protein), without phosphorus supplementation, gained at a slower rate, ate less feed and required more feed per pound of gain than those with phosphorus supplementation (Table 3). These data show

TABLE 3. Effect of Adding Phosphorus to a Corn-Soybean Meal Ration for Swine in Dry Lot

Ration	Phos. %	Daily Gain	Daily Feed	Feed Per Lb. Gain
Corn-Soy Basal	.30	1.30	4.95	3.8
Basal + Dical.	.45	1.53**	5.23	3.4
Basal + H_3PO_4	.45	1.56**	5.39	3.5

** Significant at the 1% level.

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Performance!
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FULL BULK
- All steel welded water tight construction.
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- Individual compartments with individual dump doors.
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- 9" floor auger, 12" vertical auger, 9" discharge auger, heavy industrial, specially designed.
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rather clearly that a corn-soy diet is inadequate in available phosphorus for optimum growth and feed efficiency in swine. In order to increase the phosphorus level in the feed to .45%, it was necessary to add .8% dicalcium phosphate to the basal ration.

Ladino clover pasture did not furnish sufficient phosphorus to balance a diet of corn and soybean meal (Table 4). Raising the phosphorus in the diet from .28% or .33% to .45% increased gains 33% on the low protein ration and 26% on the ration containing the recommended level of protein (14% to 100 lb.; then 12%). Feed requirement and cost were reduced by fortifying these rations with phosphorus. A further increase in phosphorus level from .45% to .6% of the ration did not significantly affect the growth rate or feed efficiency.

These data indicate that feeding phosphorus at a level above the pig's requirement is of no special value. Several pigs in the adequate protein-low phosphorus lot exhibited borderline phosphorus deficiency symptoms. Adding supplemental phosphorus to the basal corn-soy rations improved skeletal growth, thriftiness and general appearance.

SYMPTOMS OF A PHOSPHORUS DEFICIENCY—The following symptoms have been observed in pigs either fed an inadequate level of phosphorus or on phosphorus supplements showing poor availability.

1. Anorexia or loss of appetite.
2. Poor feed utilization.
3. Reduced growth rate.
4. Abnormal bone development.
5. Lowered inorganic blood phosphorus.
6. Stiffness resulting in difficult and strained movement.
7. A "pinched" or "tucked" appearance in the loin region.
8. A hump-backed appearance due to drawing of the front legs back and the rear legs forward.
9. A rough hair coat.
10. If the deficiency was prolonged for two or three weeks, collapse of the rear quarters and inability to stand or walk resulted.
11. On autopsy, soft "rubbery" bones which could be easily cut with a knife, beaded ribs and cortical degeneration of the kidneys were observed.

TABLE 4. Response of Pigs to Phosphorus Supplementation on Ladino Clover Pasture (Fed from 34 to 200 lb.—112 days)

Phosphorus Level	Daily Gain	Daily Feed	Feed Per Lb. Gain	Feed Cost Per 100
14% protein to 100 lb.; then 12%				
0.33% to 0.31%	1.24	4.14	3.35	$9.07
0.45%	1.56**	5.14	3.30	$8.98
0.60%	1.53**	4.83	3.15	$8.68
10% protein to 100 lb.; then 8%				
0.28% to 0.26%	1.05	3.70	3.54	$9.20
0.45%	1.40**	4.37	3.13	$8.20
0.60%	1.48**	4.58	3.10	$8.21

** Significant at the 1% level.

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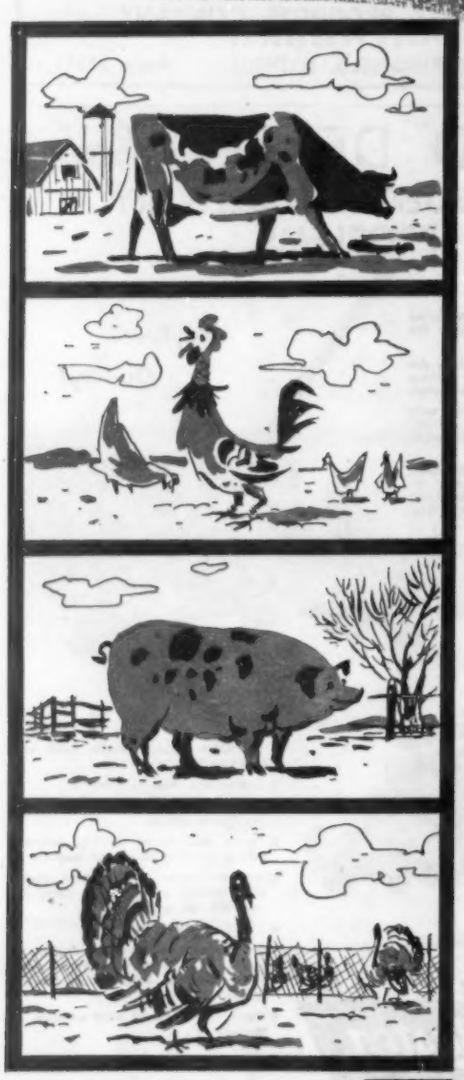
New Installations

CHICAGO — Announcement of 31 new Blue Streak equipment installations has been made by the Prater Pulverizer Co.

The most installations made in any one state were made in Wisconsin, 8. Other states, with the number of installations, are: Illinois, 7; Iowa, 3; Minnesota and Indiana, 2 each, and Oregon, West Virginia, Arkansas, Ohio, Mississippi, Washington and Missouri, 1 each. Installations also were made in Manitoba and Malaya.

BETTER FEEDS BEGIN WITH Ray Ewing SERVICE AND PRODUCTS



Outstanding Nutritional Service combined with the unsurpassed quality of Ray Ewing products is your best assurance of producing the best in formulated feeds.

Feeders, breeders and growers from coast to coast are getting top results with their quality feeds built around Ray Ewing Feeding Programs and Products. You can get a greater share of that feed business now. Use Ray Ewing tested and proven performance products.

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With ARID-AIRE moisture evaporates faster, grain temperature is lower. You get grain that grades high every time!

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Students to Receive Purina Fellowship Awards Selected

ST. LOUIS — Ten graduate students, nine men and one woman, have been named recipients of the Ralston Purina Co. research fellowship awards for 1960-61 by the awards committee, according to an announcement by J. D. Sykes, Purina vice president.

Recipients of the fellowship are: in dairy husbandry, Robert K. Bergman, University of Missouri; Carl Edward Coppock, University of Maryland, and Emmett Keith Inskeep, University of Wisconsin; in poultry husbandry, Nugawilage D. Nugara, University of Georgia; in animal husbandry, Earl F. Ellington, University of California; Don Ovid Pinney, Oklahoma State University; Ned S. Raun, Iowa State University; Norman Lee Murray, Oregon State College, and Margery Jean Twombly, University of California; in veterinary medicine, Ralph David McQueen, University of Illinois.

Alternates are: Garth E. Miller, University of Minnesota; Marvin E. Oetting, University of Missouri, and John R. Sabine, University of Illinois.

"Unusually strong applications in the field of animal husbandry" resulted in five animal husbandry fellowships being granted this year instead of the usual three, Mr. Sykes said. He pointed out that in future years, the availability of fellowships will be on the same basis as in the past, with three in each of the fields of animal husbandry, dairy husbandry and poultry husbandry and one in veterinary medicine.

The competition for Purina research fellowships is open to agriculture students in colleges throughout the U.S. and in Canada. Recipients are chosen on the basis of their scholastic records and their stated objectives in animal agriculture. The awards committee which made the selections consists of five agricultural leaders. They are Dr. Robert MacVicar, Oklahoma State University; Dr. L. E. Hanson, University of Minnesota; Dr. R. H. Thayer, Oklahoma State University; Dr. W. A. Hagan, National Animal Disease Laboratory, Ames, Iowa, and Dr. N. L. Jacobson, Iowa State University.

The purpose of the Ralston Purina fellowship program is to help train outstanding college students for leadership in the science of livestock and poultry production. Each fellowship amounts to $1,800.

Dairy Feed Schedule Changed by Co-op

HARRISBURG, PA. — Duncan Woodward, Pennsylvania Farm Bureau Cooperative Assn. feed sales and service manager, has announced changes effected in the Farm Bureau's "Profitmaker" dairy feeding program.

The new schedule—including 17 "Profitmaker" dairy feeds — "offers the farmer the opportunity to choose a feed that provides the exact protein level for maximum feeding economy with his own hay and silage," Mr. Woodward said.

"This selection," he said, "offers the right protein level to balance roughages and the exact texture for ease of feeding and handling."

Several factors were cited by Mr. Woodward as important in bringing about the new schedules: Bulk feeding and interest dairymen have shown in partially-pelleted feeds.

Basically, in the Farm Bureau's new list of selections, ground and partially-pelleted feeds will be called "Milkmaker" and pelleted feeds will be "Dari-Krunch." Previously, partially-pelleted feeds in the Profitmaker dairy programs were called "Dari-Flo." This line has been expanded, Mr. Woodward explains, and is now incorporated under the Milkmaker line to correspond to the over-all program.

Also included will be the Milkmaker supplements, Pro-Blend 50, Dari-Las and fitting feed.

When the heat is on for rush shipments of pure crushed reef oyster shell . . . sound the alarm for **Shellbuilder.**

SHELLBUILDER COMPANY
MARINE BUILDING
HOUSTON, TEXAS

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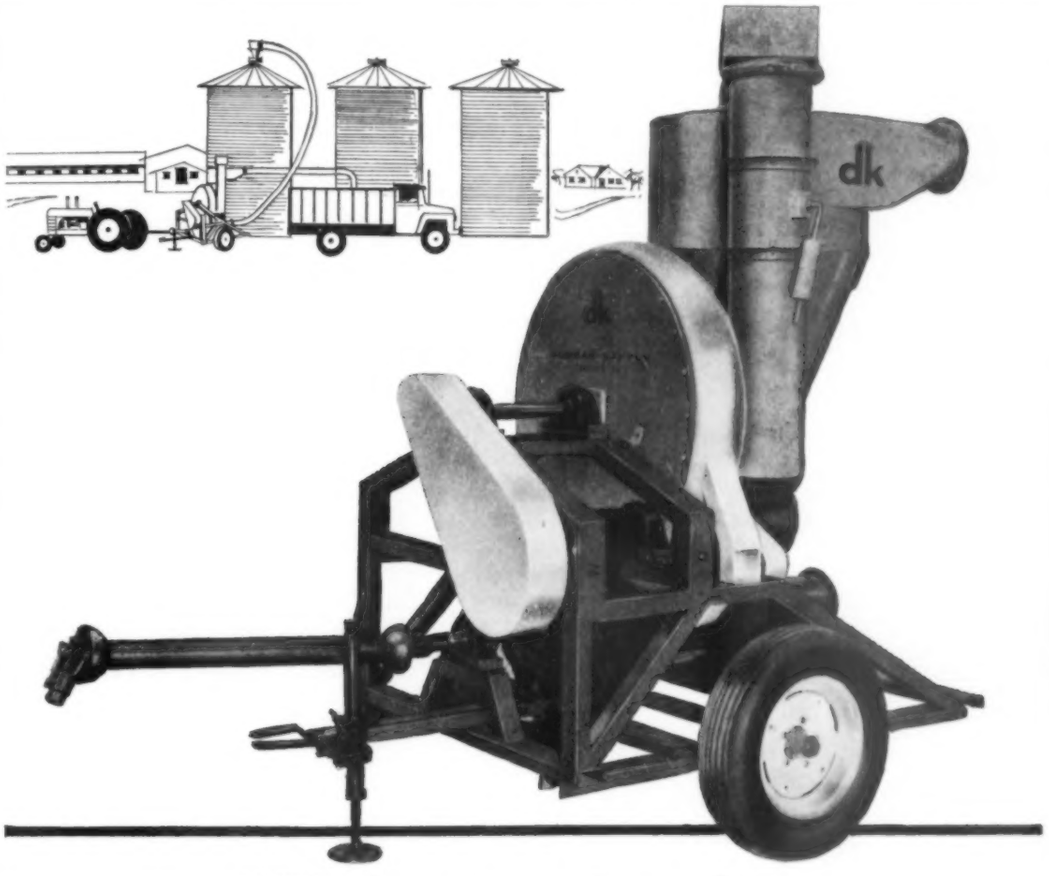

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. . . let air move your grain faster, cleaner

Now . . . an economy priced pneumatic grain handling machine, made to order for small grain dealers and large farmers. It's the new 1000 Series PTO VAC-U-VATOR. Here's a compact, yet powerful machine that operates off your tractor.

Using an air-flow principle, the PTO VAC conveys your grain in any direction . . . in, out, up or down . . . into or out of flat buildings, round bins, trucks, cars or barges. Floating on a cushion of air, your grain moves swiftly, yet gently. The air cleans your grain, too . . . removes odors.

A versatile work horse, the PTO VAC is completely portable . . . can be moved from one place to another in minutes. Capacity . . . 500-1200 bu. per hr. . . . conveys up to 150 ft. . . . elevates to 45 ft.

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Just weaned and they're halfway to market

HOW TO USE A POTENT IDEA TO SELL MORE SWINE FEED

Ask your customers if they've ever considered this fact:

By weaning time, the most important half of a litter's life is gone . . . and half the litter is dead.

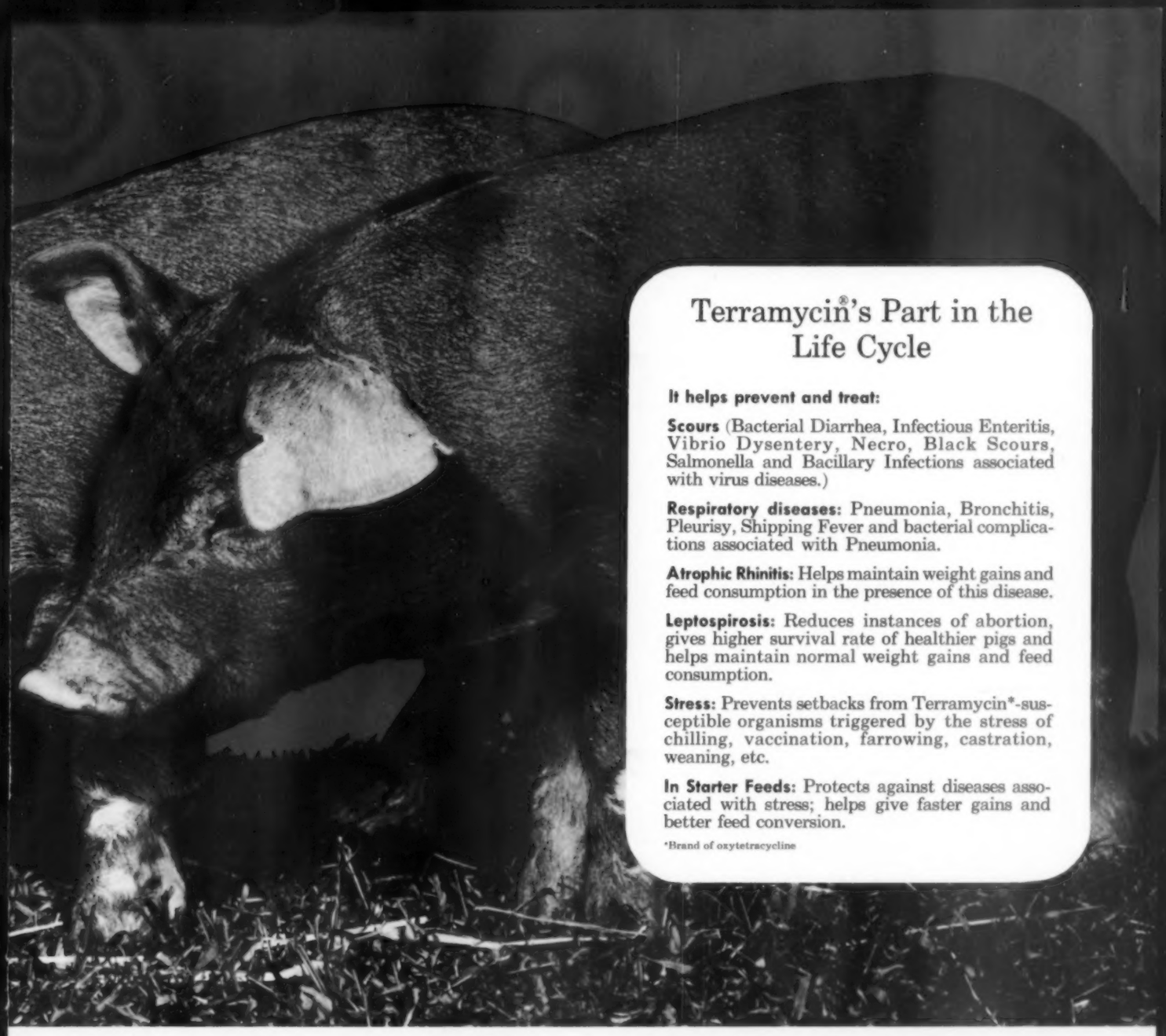
(Here's how it adds up: The first half of a litter's life—from conception to weaning—is the roughest. An average of 6 pigs are lost from conception to farrowing . . . 2 after farrowing.)

And how many of your customers would buy your entire Life Cycle Feeding program if they realized this fact:

Life Cycle Feeding and Management can help correct 80% of the causes for short litters on today's typical farm . . . can help cut 25% to 50% off pig costs at farrowing.

Show your customers how—by farrowing larger litters and weaning more pigs—they can increase their income with no increase in basic costs . . . and you have a perfect background for your sales story on gestation, lactation and starter feeds:

- Pregnant sows need a special balance of nutrients for farrowing larger litters of strong, healthy pigs.
- At lactation, different levels of nutrients such as vitamins, minerals and protein are needed by sows for a heavy flow of high-quality milk.
- Baby pigs need a starter feed fortified with high levels of antibiotics, proteins, minerals and other nutrients for the best livability and faster growth.



Terramycin®'s Part in the Life Cycle

It helps prevent and treat:

Scours (Bacterial Diarrhea, Infectious Enteritis, Vibrio Dysentery, Necro, Black Scours, Salmonella and Bacillary Infections associated with virus diseases.)

Respiratory diseases: Pneumonia, Bronchitis, Pleurisy, Shipping Fever and bacterial complications associated with Pneumonia.

Atrophic Rhinitis: Helps maintain weight gains and feed consumption in the presence of this disease.

Leptospirosis: Reduces instances of abortion, gives higher survival rate of healthier pigs and helps maintain normal weight gains and feed consumption.

Stress: Prevents setbacks from Terramycin*-susceptible organisms triggered by the stress of chilling, vaccination, farrowing, castration, weaning, etc.

In Starter Feeds: Protects against diseases associated with stress; helps give faster gains and better feed conversion.

*Brand of oxytetracycline

Great sales story? Sure thing. And more swine producers are putting emphasis on Life Cycle Feeding and Management every year. See your Pfizer representative for complete details on this sales-boosting program.

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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Meaning of "Feed Grade"

The expression "feed grade" is used in one of two senses. It can mean that a product is of poorer quality than "food" grade; that is, products used for human consumption are better than "feed grade" products. In the case of fat, however, the expression "feed grade" means it is better than plain fat. It means it is suitable for animal feeding.

In a search for clear-cut expressions, the Association of American Feed Control Officials is hopeful we can settle on terms with but one meaning. Advice and suggestions in this area are always welcome.

Contract Feed

Contracts vary widely as to details, but most feed distributed under contract is subject to the provisions of state feed laws. There may be exceptions, but by and large this is true.

Where the feeder's income might be affected by the composition and quality of the feed, the feeder is entitled to the safeguards provided by these laws. If the feeder's income is fixed regardless of feed conversion, mortality, or other factors, registration is not required, and the feed would not be subject to the inspection and analysis procedures as a sale to the actual "feeder".

The question narrows down to what kind of contract is used. The contractor may own the birds or animals and distribute the feed, but if the final compensation of the feeder is determined by feed conversion, mortality, rate of gain, and similar factors, the feed law provisions apply. If, on the other hand, the contractor owns the birds or animals and pays the feeder a straight out-and-out wage without regard to the amount of feed consumed, the number of birds or animals lost, or the rate of gain, the operation is beyond the feeder's control as far as the feed is concerned and no sale of feed is involved at this point. A feed manufacturer may, however, have sold this feed to the contractor, and if so, that sale comes within the provisions of the feed law in the state in question. For the most part, feed distributed as a part of a contract operation is no different from any other feed sold as far as feed laws are concerned.

◆

Labeling Contract Feeds

In this connection it is well to remind distributors of contract feeds that every shipment should be accompanied by an invoice or tag that indicates the chemical composition of the feed and the ingredients used in formulating it. This is a legal requirement.

Recent complaints with regard to poor livability and other troubles in laying flocks and in broiler operations have been difficult to follow up because the feeder had not received a guarantee when the feed was delivered.

The feeder should have a written guarantee with every delivery.

◆

Texas Permit Number

Some labels are still in circulation showing a Texas permit number. In reprinting such labels, this plan of showing this number is being perpetuated unnecessarily. The Texas law as revised no longer requires this; therefore, this expression may be dropped. Only a limited number of states require the permit number on labels, and we look forward to the time when none will require it.

◆

Change in Missouri Law

A recent change in the Missouri law is also welcome. Formerly, labels on ingredients sold to feed mixers carried the statement "for use in registered feed only, tonnage inspection fee not paid." This statement is no longer required under the revised Missouri law.

Dracco Plant Addition Construction Begins

CLEVELAND, OHIO — Construction has been started on a two-story addition to the main plant of Dracco division of Fuller Co., producer of dust collection and pneumatic conveying equipment.

"Production demands brought about by increased sales necessitated erection of the new facility which will house three major departments," company officials say.

The addition, which is scheduled for completion in July, will add more than 18,000 sq. ft. to Dracco's present facilities, raising the total plant area to over 85,000 sq. ft.

Engineering and sewing departments will occupy one wing of the L-shaped addition, the machine shop the other. The 7,000 sq. ft. machine shop will be three times larger than the present shop area and will accommodate four overhead, two-ton cranes for more efficient equipment handling. Other departments, such as sales, accounting and production, will make use of vacated areas in existing buildings.

ever meet a one man gang ?

We don't really have one on our payroll . . . it just seems that way to the many customers to whom we furnish a complete mill designing, financing, and construction service. Because we tackle the whole job from start to finish, our composite picture looks something like this:

CONSULTANT—This is the hat we wear when we first meet with you to discuss building your new mill or remodeling the one you have right now. We find out your objectives and recommend the best ways to achieve them.

ENGINEER—*Your* needs and *our* ideas are put together into a plan that details the best possible mill for you . . . no matter whether it's single-purpose, custom, production, or small manufacturing.

BANKER — Choose one of the 54 convenient Myers-Sherman purchase plans that let you pay for the new mill as it earns for you. We can even lease it to you if you like or help you set things up with your own regular financial sources.

CONTRACTOR—As soon as the "go ahead" sign is given, work on your new mill begins immediately. Equipment deliveries are pre-planned to a rigid schedule and costly delays are eliminated. Almost before you know it, your new plant is complete and operating.

EXPEDITER—We ride herd on all suppliers and subcontractors . . . make sure you get exactly what you want, precisely when you want it.

SERVICE ENGINEER—When your mill is completed we get it started for you, instruct your personnel on proper operation and maintenance, help you with any problems you may encounter later.

Experts like this assure you of getting the best mill for the money. Best of all, the quality and workmanship of every piece of Myers-Sherman equipment you operate is fully guaranteed and backed by the Myers-Sherman reputation for sound engineering design, quality workmanship and construction.

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HYGROMIX IS THE ONLY WORM CONTROL METHOD THAT KILLS THREE KINDS OF SWINE WORMS DAY AFTER DAY, AND ELIMINATES THE SOURCE OF THE PROBLEM BY STRANGLING WORM-EGG PRODUCTION.

How Hygromix kills swine worms... *and why this is important*

Flushing out swine worms once or twice in a pig's lifetime has never been the solution to the problem. The best-timed purging could never truly break the worms' life cycles. New eggs had been laid that would reinfect the herd again and again.

Now, with Hygromix-fortified feed, it is possible to kill swine worms day after day *before* they do their damage and *before* they reseed the lots, pens, and pastures with billions of new eggs.

Hygromix kills three kinds of worms day after day

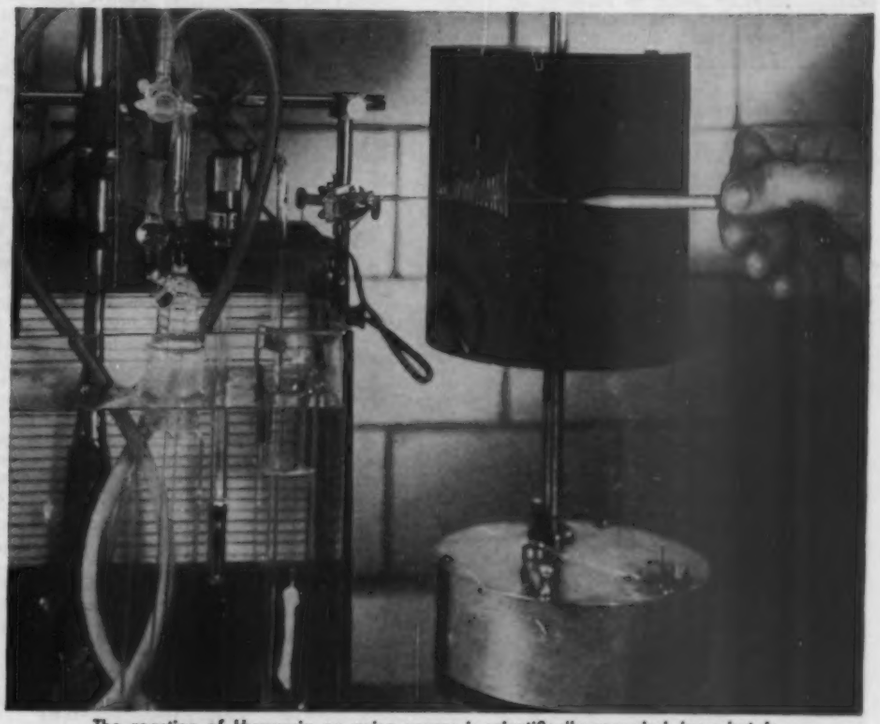
Hour after hour, day after day, Hygromix present in the hog's system kills the large roundworm, nodular worm, and whipworm. Although Hygromix kills more kinds of worms than any other method, the great advantage is that this killing action is continuous and, therefore, stops worm reproduction. As the young worms hatch and start to absorb nutrients from the pig's intestinal system, they also absorb Hygromix present in the system, wither, and die *before* they reach egg-laying maturity. In cases where hogs have not been fed Hygromix previously, the adult worms already present are also killed . . . thus breaking the worms' life cycle at two points.

Why worms are seldom seen in the hog lot

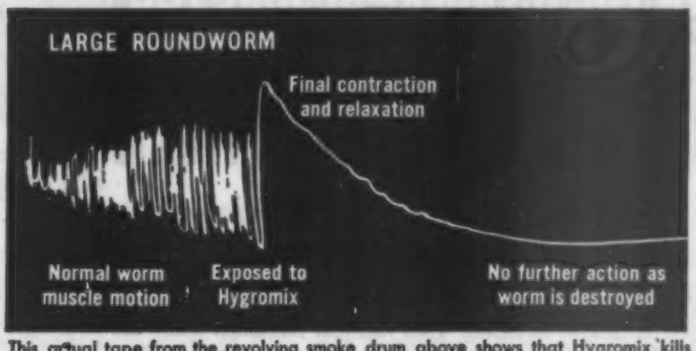
Few worms will ever be found in the droppings of Hygromix-fed hogs for two reasons.

First, since the killing action of Hygromix is continuous, the worms are killed while they are too young to be visible. Secondly, when Hygromix is first fed to hogs that already have adult worms present in their system, it gently kills the worms instead of flushing them out. The worms are then usually destroyed in the hog's system before they are passed.

Makers of **STILBOSOL®** (diethylstilbestrol premix, Lilly)
Streptomycin Sulfate • Vitamin B_{12}
Micro-Pen® (special coated procaine penicillin G, Lilly)



The reaction of Hygromix on swine worms is scientifically recorded by what is known as the "smoke drum" test shown above. A strip of worm muscle is suspended in a glass tube (lower right of tank) and connected to a needle that records the muscle's reaction to Hygromix on the revolving drum (upper right).


LARGE ROUNDWORM
Final contraction and relaxation
Normal worm muscle motion
Exposed to Hygromix
No further action as worm is destroyed

This actual tape from the revolving smoke drum above shows that Hygromix kills worms by inhibiting the mobility of the tissue. When exposed to hygromycin B, the worm's muscles make one last contraction as shown by the high point of the jagged line, then become immobile. For purposes of this test, highly concentrated dosages of Hygromix are used. Under actual feeding recommendations the killing action takes a longer period of time than indicated here.

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UP OR DOWN

By Dr. Leonard W. Schruben, Agricultural Economist, Kansas State College

Corn Acreage To Remain Large

With an average or better crop season, there isn't much chance we will run out of corn this year. Farmers expected to plant about 86 million acres when asked by the Crop Reporting Board about their plans earlier this spring. Last year's plantings were about the same.

Farmers were asked in March what they intended to plant this year. Here is their answer: About the same acres to corn and grain sorghum, fewer acres to oats and barley, and more acres to soybeans.

More details as to farmer intentions to plant are shown in Exhibit 1 along with acreages for the last few years. You will notice the big increase in corn acreage last year. This occurred following the change in the corn program eliminating acreage allotments, lower supports for other crops, and an end to the acreage reserve part of the soil bank. This large acreage will be maintained in 1960 if farmers carry out their intentions.

If you are going to make intelligent use of the reports for 1960 you need to have a good idea how often and how much plans were changed later in the season. Not that past history will be repeated, but it will help you gauge the confidence you can place on the estimates.

Exhibit 2 has been prepared to give you a picture of how closely prospective plantings were realized. In general, intentions were followed fairly closely. However, during some years substantial changes were made.

Here is how to read Exhibit 2. The March prospective plantings for each year are found on the bottom scale. Then you read up until even with the actual plantings measured on the left hand scale. At this point you place a dot and write the year beside it. This is done for each year.

After the data are all located, a line was drawn that represents the general relationship. If each year fit this usual pattern, the dots all would fall on the solid line. As you can see, they don't. When the dot is above the line actual plantings exceeded March intentions to seed and vice-versa.

On top of this big acreage a record carryover of old crop corn is in prospect when harvest begins this fall. This carryover is expected to total just under 2 billion bushels. Thus a bumper yield on the large acreage could easily give us a total supply of corn of over 6 billion bushels for the crop year beginning Oct. 1, 1960. This is approximately equal to the previous record set last Oct. 1.

To be sure, final plantings may not fulfill early intentions. Many things come up to cause farmers to change their plans. However, it isn't too early to start looking for a big corn crop and make plans accordingly. With reasonable growing weather, there will be ample feed supplies for the foreseeable future even though livestock numbers are increasing. If a better than normal season develops, many farmers will get out the hammer and saw and start fixing up the old corncrib or building a new one.

Dates Set for Oregon Nutrition Conference

PORTLAND, ORE.—The 19th Animal Nutrition Conference, co-sponsored by the Oregon Feed & Seed Dealers Assn. and Oregon State College, has been scheduled for February 2-3, in Withycomb Hall, O.S.C. Campus, Corvallis, Ore.

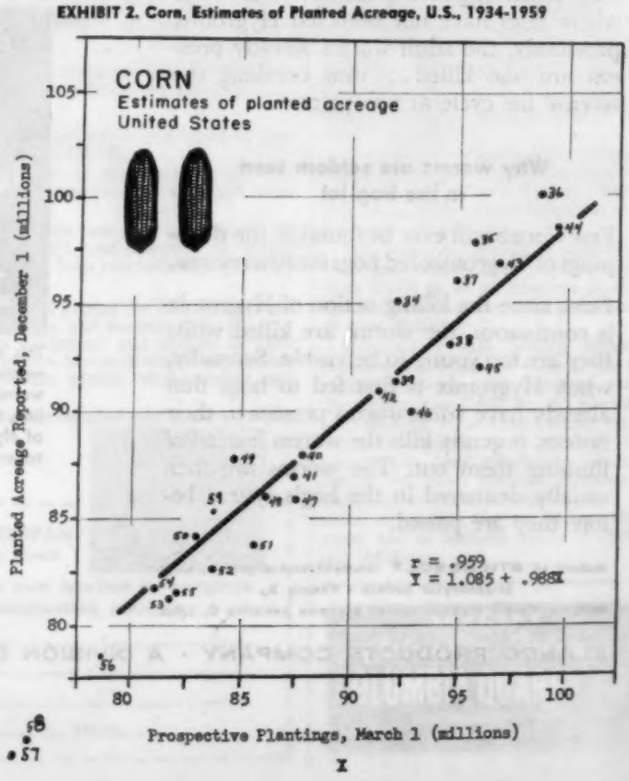
Alec Runciman, association president, announces that general chairman will be Bill Eggiman, Dairy Cooperative Assn., Portland. College and association committees will be announced soon.

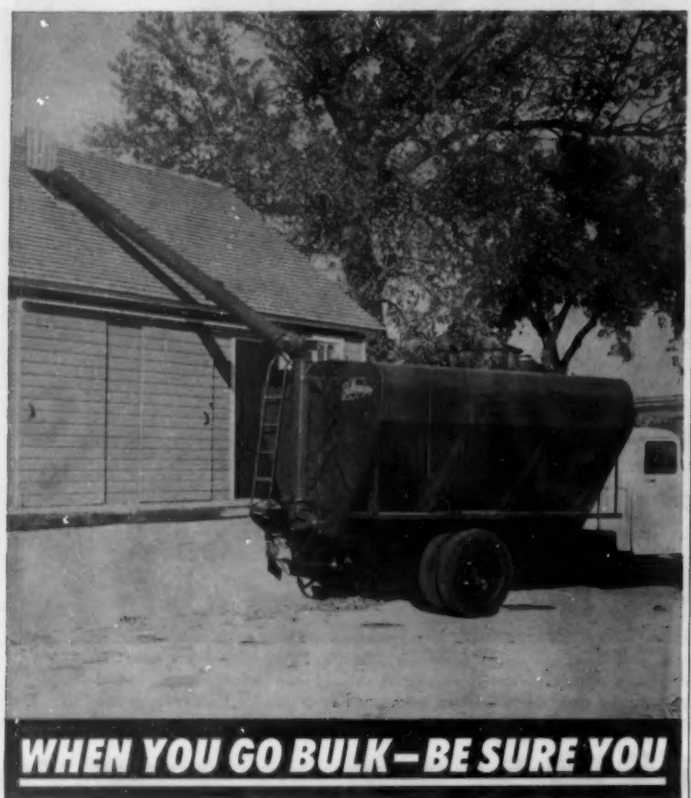
EXHIBIT 1. U.S. Planted Acreage of Corn, Oats, Barley, Sorghum, Soybeans and Spring Wheat, 1950-1960

Year	Corn	Oats	Barley	Sorghum	Soybeans	Spring Wheat
			(1,000 acres)			
1950	82,859	45,044	13,010	14,055	15,048	18,888
1951	83,275	41,015	10,790	15,028	15,176	22,379
1952	82,230	42,341	9,190	12,289	15,958	21,648
1953	81,574	43,220	9,615	14,590	16,394	21,844
1954	82,185	46,898	14,740	20,148	18,541	15,922
1955	81,097	47,523	16,335	23,979	19,658	13,951
1956	78,219	44,691	14,835	21,513	21,671	16,231
1957	73,947	42,577	16,535	26,959	21,912	12,384
1958	74,513	38,406	16,309	21,047	25,037	12,374
1959	85,530	36,141	16,990	19,886	23,178	13,431
1960*	85,758	34,273	16,386	19,800	24,667	12,817

*Indicated on March 1 to be planted in 1960.

EXHIBIT 2. Corn, Estimates of Planted Acreage, U.S., 1934-1959





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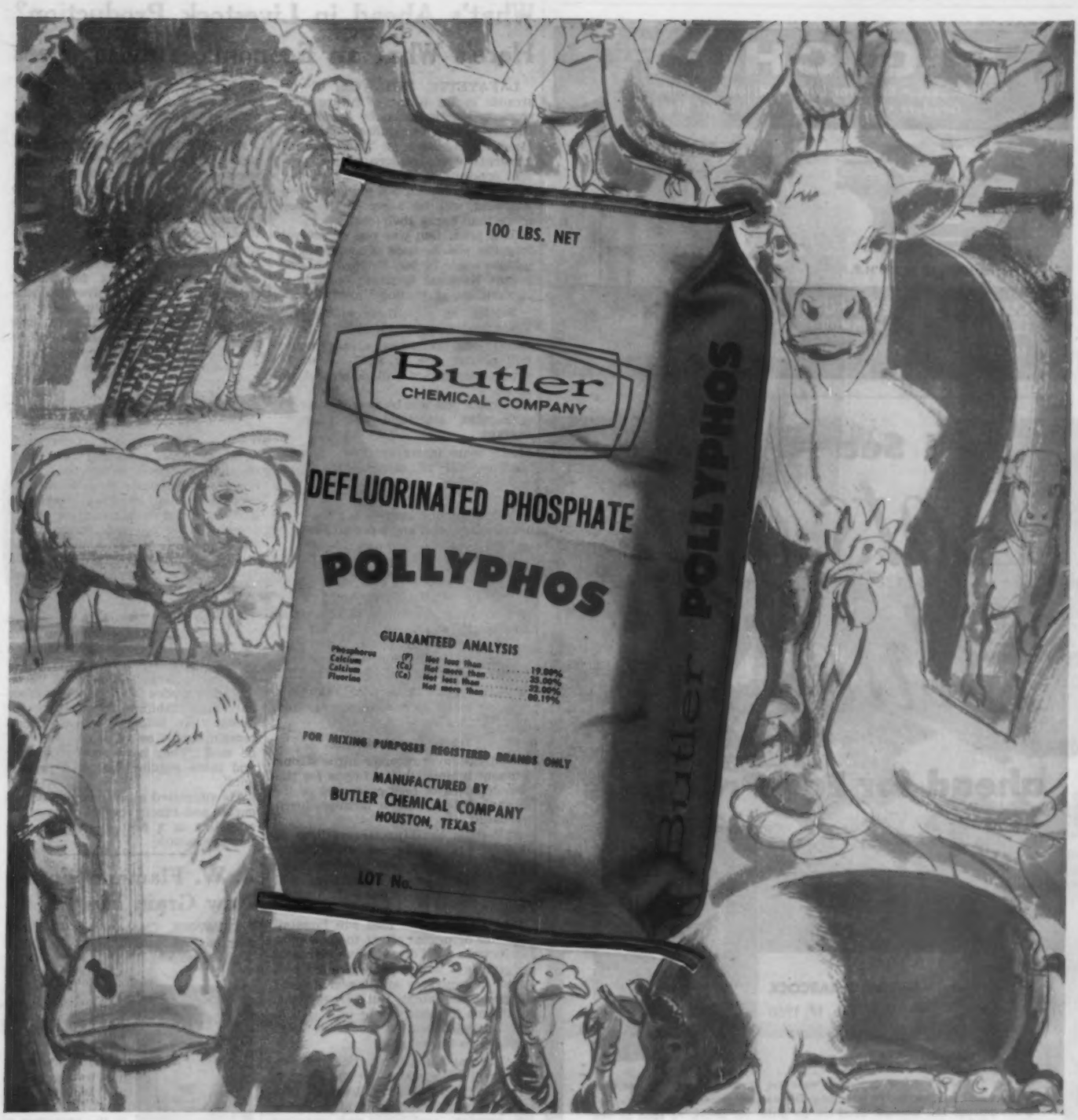

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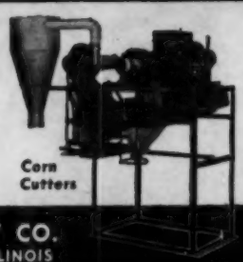

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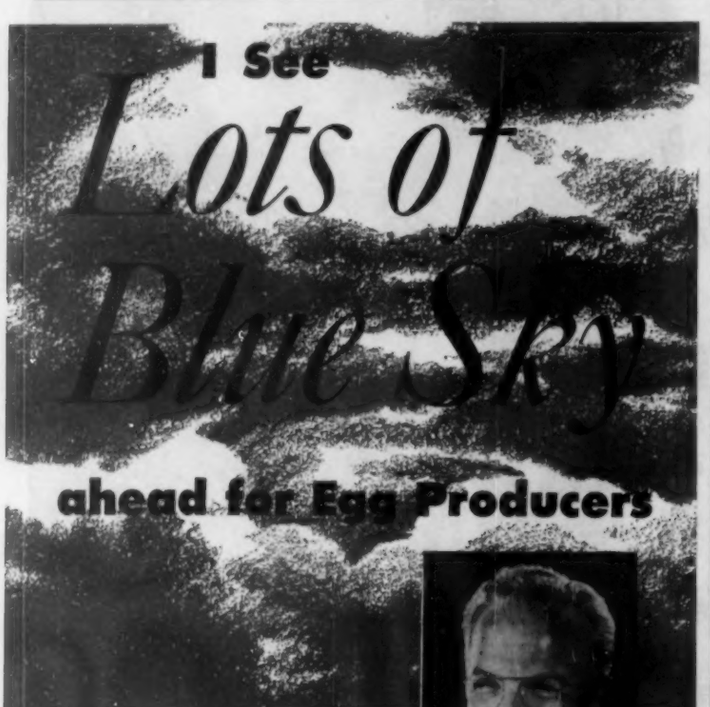

by MONROE C. BABCOCK
Feb. 17, 1960

This morning the low egg price woke me up at 3:30 a.m. Rather than worry about it, I decided to write you. Do low egg prices keep you awake? If so, get up. Get dressed. Send me an order for chicks. As soon as you order chicks, you'll sleep well at night and feel fine. No matter where you live, there's a Babcock Bessie hatcheryman near you. I'll send your order on to him.

If you still have your layers and at least 10% of your optimism, it's almost time to celebrate. The battle is almost won. I believe by July egg prices will be "on the top."

Ten months of rough egg prices have washed out many older poultrymen who were ready to retire anyway, some larger poultrymen whose credit couldn't stretch far enough and almost 100% of the integrators who were in business on borrowed capital.

As a whole, the United States is off 20% to 25% on number of egg-type chicks started so far this year. Even a big summer hatch, if it should materialize, won't make up for the sales volume lost by hatcheries in January, February and March.

If you have a nice flock of young pullets coming on, you're really in nice shape even if you had to risk everything you had to get them started.

If you simply can't raise the money to start chicks; if you have a good flock of year-old hens; and if the price of eggs is still low when you read this, you may want to molt your hens now. If you want more information on molting layers, we have it ready for you. Just write us.

● *By the way, the new Babcock Bessie is a completely new bird. She's a wonderful bird. You'll like her because she lives better, lays better, has fewer cracked eggs, fewer bloodspots, and better I.Q.*

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What's Ahead in Livestock Production? Here's What an Economic Advisor Sees

LAFAYETTE, IND. — One of the strands in the fabric of future livestock production seen by Harold F. Breimyer, staff economist, Council of Economic Advisers, is: "Inorganic ingredients won't replace grains, protein concentrates and forage to any appreciable extent, but any new feed additives will be accepted if they more than repay their cost."

This prediction was one of several long-run observations of animal agriculture made by Mr. Breimyer at the recent National Institute of Animal Agriculture at Purdue University.

Briefly, he sees these other livestock production trends ahead:

- "Various production arrangements will persist side by side. No single type of operation will dominate the scene.
- "Production will be geared more to a regular, stabilized and exacting market.
- "In some instances livestock production will be disconnected from production of crops; in others it will not.
- "Farm production will become ever more specialized and more scientific.
- "Feed supplies will be plentiful and relatively inexpensive for many years.
- "Future emphasis will be on quality and on variety of products.
- "Livestock production will continue to expand, and these larger supplies of meat, milk and eggs will move into consumption more readily that currently suggested.
- "Greater use of chemical materials will be made to control disease and infection."

Interest in Additives

Mr. Breimyer recognized the strong current interest in the future for the development of feed extenders or inorganic substitutes for farm-produced feedstuffs.

"Feed is the biggest cost item in livestock production and any economy in it will be readily adopted," he said. "Any new feed additives will be accepted if they more than repay their cost. On the other hand, the relative cheapness of feed will forestall intense or urgent effort to economize in its use . . . I do not think inorganic ingredients will replace grains, protein concentrates and forage to any appreciable extent. But perhaps such elements in feeds will be used in connection with relating production more closely to the market.

"Less and less production marketing will be random, hit or miss, or traditional in routine. Instead, production will be increasingly geared to a regular, stabilized and exacting market."

It is possible, Mr. Breimyer said, that steers will be prepared for sale on a prearranged date at an agreed-on grade and weight. "Growth stimulators or growth retardants might conceivably be used to help in meeting those target specifications," he said. "Other ingredients may help in achieving desired quality in animal products."

He further observed: "In spite of all that has been learned about rations, feed conversion ratios have not changed materially during several decades. This is a normal economic result of the relative cheapness of feedstuffs. So long as feed remains cheap, many of the economies in livestock production will be sought elsewhere."

Mr. Breimyer believes, as other marketing authorities do, that emphasis in the future will be on quality and on variety of products. "Somehow, some way, the consumer's guesswork in buying meat and eggs must be reduced," he said.

He suggested this possibility: "Perhaps blood lines of livestock will be selected for quality of final product, and the output of those lines will be identified throughout the marketing process, including the retail counter. We might in the future buy beefsteak or eggs labeled with the pedigree of the cow and the hen."

Mr. Breimyer looks for more changes in methods of livestock production than in its institutional organization. He believes that in some instances livestock production will be disconnected from crop production.

Feeding lends itself to better large-scale units than does the production of young animals, he said. "The big deterrent to complete mechanization of livestock is the biology or reproduction," Mr. Breimyer commented. "Until it becomes possible to remove week-old foetuses from cows, ewes and sows and place them in incubators to develop, livestock production will be carried on in a mixture of settings. Neither complete commercialization and integration, nor untouched traditional organization, will pervade the industry. Instead, in my view, various arrangements will persist side by side."

A must for the future, according to Mr. Breimyer, is to find a way to avoid cyclical upheavals in production and price of livestock, especially of beef cattle, hogs and poultry. "Even though supplies and prices of feed have been stabilized to much greater extent than before, livestock cycles remain almost as vexatious as ever," he said. "They have become shorter and more regular, but still persistent."

He suggested a more complete, accurate and timely service of livestock statistics as a first step in leveling out production.

J. W. Flammer Forms New Grain Firm

DOWNEY, CAL.—Jack W. Flammer has announced the formation of J. W. Flammer Co. to engage in the merchandising of grain. Offices are to be located just outside of Los Angeles in Downey.

J. W. Flammer

Mr. Flammer has been associated with his father, C. G. Flammer, in the operation of Flammer Mill & Warehouse Co. and Flammer Grain Co. for the past 15 years.

At present, Mr. Flammer is president of the California Hay, Grain & Feed Dealers Assn., vice president of the Los Angeles Grain Exchange and serves as a director on the board of the Grain & Feed Dealers National Assn. and the National Grain Trade Council.

EMPLOYEE BUYS PLANT

HARRISBURG, ORE.—Herman S. Kropf, who has been employed for years at Harrisburg Feed, announces that he has purchased the business from Tom Cowgill. Mr. Kopf reports he will carry on the operation of the feed and seed plant including the manufacture of a number of specially ground feeds.

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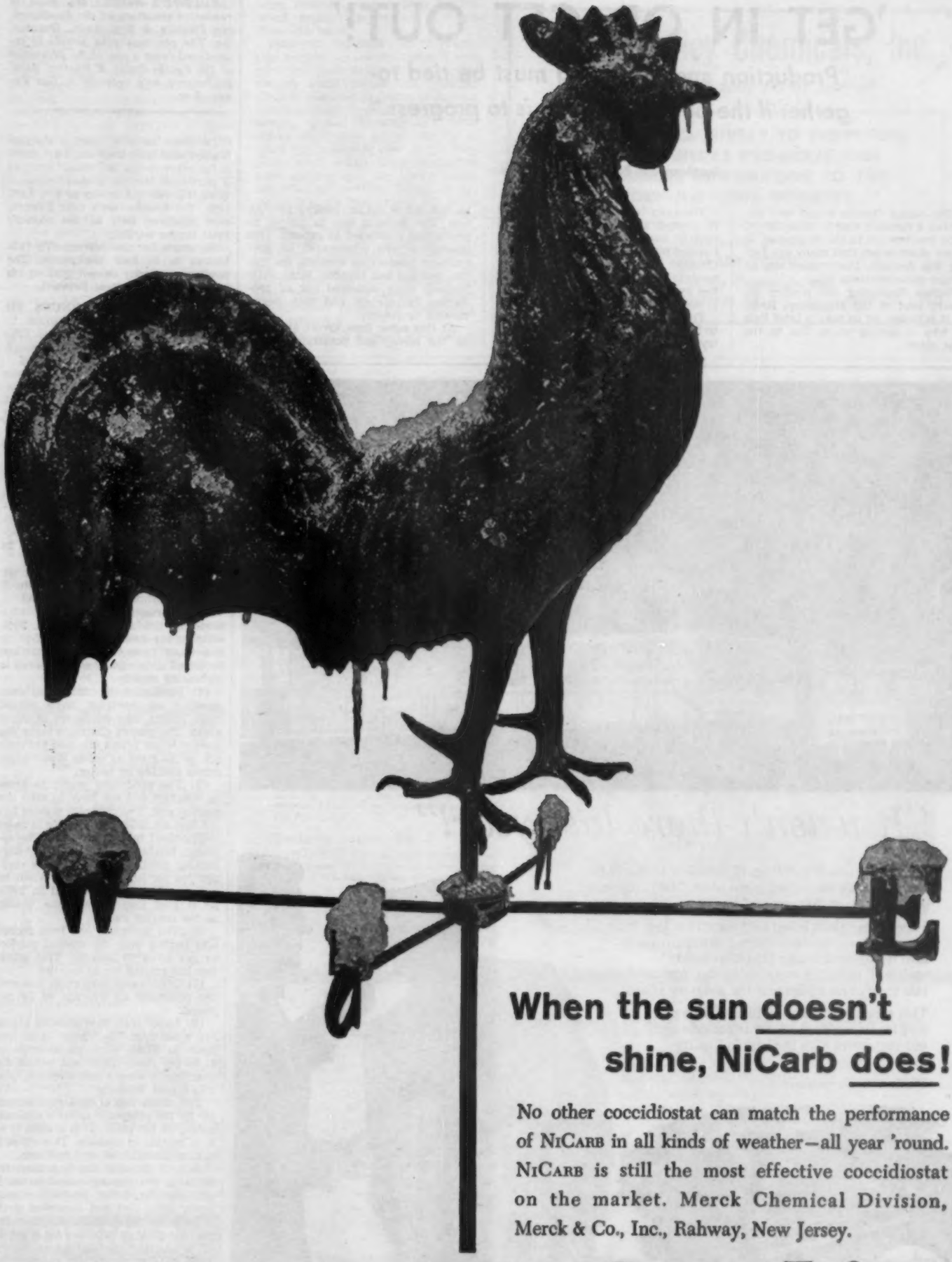

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'GET IN OR GET OUT!'

"Production and marketing must be tied together if the poultry industry is to progress."

By Harold Ford
Southeastern Poultry & Egg Assn.

EDITOR'S NOTE: Mr. Ford is executive secretary of the Southeastern Poultry & Egg Assn., Decatur, Ga. The eccompanying article is reproduced from a speech he presented at the Pacific Dairy & Poultry Assn. conference held recently in Las Vegas, Nev.

The saying "get in or get out" describes a decision that is being forced upon poultrymen in the Southeast. It is my observation that many are facing this decision. Poultrymen can no longer remain status quo.

Before discussing the poultry industry east of the Mississippi River as it is today, let us take a brief look at why it sprang up so fast in the first place.

The story is an old one. World War II created a demand for meat, and poultry meat could be produced to a finished product in only twelve weeks. Coupled with this was the South's need for an agricultural income. It had available labor, land and climate. It was a natural for poultry.

Following the war, a decision had to be made by the then so-called poultrymen in the Southeast—a decision to "get out or get in" poultry production. The decision was to get in, so production continued to expand. This production was accelerated by government production controls on cotton, peanuts and tobacco. Many little farmers were squeezed out of production completely and they began turning to poultry.

At this same time, credit appeared on the scene, and poultrymen with little more to offer than a chicken house found that they could get credit for other needs. So, what began as a part-time income is now full-time work, income and a way of life. Last year, the 10-state area that I represent produced 64% of the nation's total broiler supply.

So much for the history. To talk history is to look backwards. The poultryman today cannot rest on his laurels—he must look forward.

PRODUCTION CONTINUES TO GROW—The industry continues to expand in the Southeast. Why? Efficiency from farm production through the processing plant has increased.

A recent study was made of our industry and I have pulled together some points that may be of interest to you—they were to me. They are not the world shaking things—just a few simple pointers that may point up the present trends.

(1) A common problem confronting the processor is not overproduction but underproduction. Today's production is only 60-70% of our processing capacity. The absence of adequate production has cost the processor more than the low markets in recent months.

(2) Less than 30% of the birds are free birds. (Birds produced without prior commitment to a processor.)

(3) Approximately 75% of the birds are produced on contract, 20% on company-owned farms, and 5% by individual farmers. The percentage produced on company-owned farms is increasing rapidly.

(4) Producers in the Southeast growing on contract have netted more profits than producers in other areas. The grower contracts favor the grower when prices are low, yet may not be as good as other areas when prices are 18¢ or better.

(5) The producers prefer to grow on contract and not have to take the market risk. The contract grower has not lost his independence. He is more independent today than ever. The efficient producer is in a strong bargaining position because of the competition for his production. When he reviews the prices received in 1959, he is glad that he was not taking on the market risk.

(6) The processor has been forced into paying over the quoted market to get birds to process. This situation has existed for 10 months.

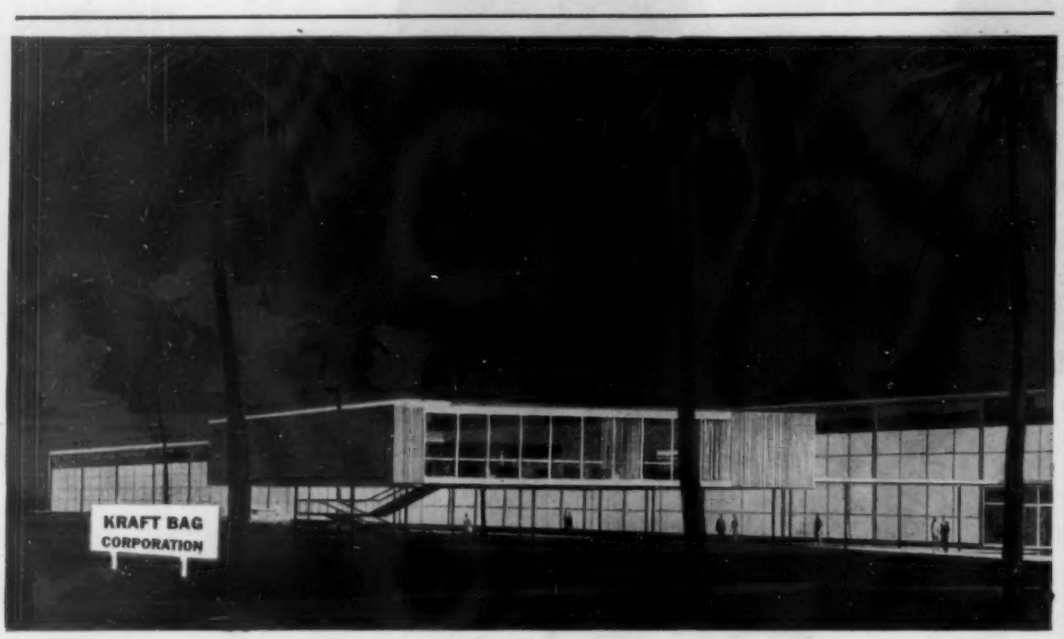
(7) Mandatory inspection has cost the processor an average of 2¢ per pound.

(8) Labor costs in processing plants are mounting. The range is $1 per hour to $1.25, with an average of $1.10 per hour. Time and a half for overtime, a week's paid vacation, plus 3 to 6 paid holidays.

Yes, there has been a mad scramble by the processor to tie a constant supply to his plant. It is a must if he is to remain in business. This effort is taking place by several methods.

A very popular one has been the building of company-owned farms. It provides for lower production cost, lower labor cost and improved quality due to supervision. Another important point, it provides for a degree of production control geared to the sales of the plants. Of course, this takes financing.

CREDIT—Regardless of the method of production in use, credit in the poultry industry in the southeast has always been important. Even before the boom, it was customary for the farmer to "charge it" and then sweat it out. Today, we have a production system that lists credit at the top of the must list. We call this system of farming integrated production. It takes several forms—vertical, hori-



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zontal, co-operative, triangular, and many others that have not been classified—they are just "deals."

The requirements for capital in this production process are great. It will play an even greater part in our industry in the months ahead. For a few years we saw production and credit in step. Early financing played its part in the rhythm of our industry. We now ask ourselves — have credit policies stimulated output beyond existing demands at a profitable price?

Hindsight tells us that it has—that broiler production became the "end product" of credit. Production was financed by the lenders rather than by the poultry firms.

For several years, liberal credit policies rode the hightides of expansion, laying aside the old reliable safe-guards. However, this picture changed last year when some of the largest lenders suddenly were jolted into realizing that they should not count their chickens before they were hatched.

A massive corporation goes bankrupt—bankruptcy is a most dramatic situation in law. When a large firm bankrupts, it sacrifices hundreds of others. The law defines your responsibilities and obligations to your creditors and stockholders, but by law, you have no responsibilities for the fate of those who work for you.

Southeastern Poultry and Egg Assn. recently had a financial study made on the credit conditions for 1960. This study revealed that credit is flowing again. However, it has stepped up its requirements of the poultryman. Even though banks are highly selective, bank credit is still alive and is showing its vitality again.

And this is good, because as an industry, we are sound. The individuals within the industry that are resistant to changes are the ones that will be forced into "getting out." People in any profession go broke when they fail to observe and respect trends.

WHERE WILL THE BROILER OF TOMORROW BE PRODUCED? —In answer to this question, we in the southeast feel that broilers are here to stay. This statement is fortified by several factors:

(1) Broiler production has become a way of life and once an industry establishes itself as such it is almost impossible to change. The roots are deep and it will take a more drastic economic squeeze than 1959 to change this picture.

(2) Small farms, land not suitable for row crops.

(3) Necessity for income.

(4) No substitute income.

(5) Willingness to work the required number of hours (7 days).

(6) Favorable climate.

(7) Abundant water supply.

(8) Favorable feed ingredient cost, water transportation.

(9) Available know-how.

Now in making the decision to "get in or get out," we might consider doing some business forecasting. A look at the history of production and the present day trends might give you an inkling of what may develop in the future. To give an example, let's look at some trends in processing today.

I see signs of a slight shifting of processing plant locations in the future. At the present, we find the plants located in the rural areas where production exists. This was wise, because you can ship the finished product easier and cheaper than live birds.

However, the high cost of inspection service (2¢ per lb.) coupled with total loss from rejected poultry, has started some people to thinking. They're thinking in terms of moving plants into the shadows of major consuming areas, trucking live birds across state lines for processing to avoid the inspection cost. If this happens, what would keep production from shifting into the states where the cities are located? Today, we are seeing live poultry hauled 400 miles into other states for processing. This poultry is being processed by plants not subject to the Inspection Act; therefore, eliminating the 3-4% average rejections. This movement for poultry from the local processors has again added to the burden of securing sufficient volume for plant operation efficiency.

We are seeing a trend (brought on

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by economic forces) toward larger plants and mergers of firms.

A pooling of farm production resources is under way in several areas in an effort to supply a processor.

There is a trend toward marketing through centralized and coordinated marketing programs.

REJECTIONS—I have referred to the poultry not passing inspection as rejected poultry. Why our industry has used, and permitted the use of words like "condemnation" and "adulterated" to become a household word in connection with poultry is hard to understand. We continually talk about diseases in poultry when so often it is only a condition with complete absence of any disease factors. It was the last of the ninth inning and it was a close play at home plate, in a professional baseball game. It was the tying run or the end of the game—depending upon the call by the umpire. "What is he? What is he?," the catcher demanded.

"He ain't nothin' 'til I say so," replied the umpire, and thereby stated the code of baseball umpiring. One wrong decision can cost a game. A lost game can lose the pennant.

And so it is with a poultry inspector—"it ain't nothin' until he says so." A wrong decision or a wrong interpretation given to a regulation can cost the profits of a producer and processor. Several can cost the producer his existence in this industry.

I have received reports that you are having high rates of rejections in your area. Don't feel lonesome, friends—we have our problems, too. They have been so severe that it's making the decision to "get in or get out" very easy for many.

Others have decided to "get in" and are rapidly moving to correct the causes at their end. We are mobilizing every conceivable idea and program to prevent these conditions that are costing us 4% of what we produce. Several states have put into action, teams of research-technical men to ride herd on the reported critical areas and to trace the problem back to its source for correction.

We realize that variations exist in the interpretation of what is wholesome and what should or should not be passed. I am confident that the Inspection Service can eliminate some of this in due time.

HIDDEN PROFITS IN MANAGEMENT—Your conference theme points out that you too have become conscious of business management decision making.

The poultryman in the Southeast has been rudely awakened to the fact that he can no longer run his business by the seat of his pants. Today's poultryman is a business man and must apply the same decision making techniques as the man in the grey flannel suit. He is finding hidden profits through proper business management techniques. In making your decision to get out or really get in—don't overlook this.

Any successful business firm should regard that satisfied feeling as a danger signal. Regardless of how successful your balance sheet indicates you to be, or how many friends and satisfied customers you now have, there is a need for constant effort in management improvement.

WHAT PRICE SALES—The capacity of the poultry industry to ignore unpleasant facts until the last minute always has puzzled me. There are times when it puzzles others. I refer to the recent Broiler Council announcement that consumption is down. This shocking information should pull us down from cloud nine and alert us to the need for keeping some romance in our finished product before many more industrymen become has-beens.

The only person that really runs this industry is the consumer, and if you continue to ignore her desires, the decision will be made for us in "getting in or getting out."

You have gone through a period of concern on how to produce. If you are going to "get in" to stay, you must become concerned over how to produce markets. You need accurate knowledge of the market potentials. You need business trained men with creative abilities, men with ideas. It has been said that the world is lousy with lousy ideas, but it only takes one good idea to make a fortune.

Production and marketing must be tied together to make productive progress. Broilers are no longer farm produced, they are manufactured. To maintain these broiler factories, markets must be expanded and new ones found. If you are not willing to seek and develop new markets, then you had best make your decision to "get out."

USING BASIC HOPPER DESIGNS

Lemanco

CAN BUILD EXTRA CAPACITY FROM 20 TO 94 TONS

At 40 Pounds Per Cubic Foot

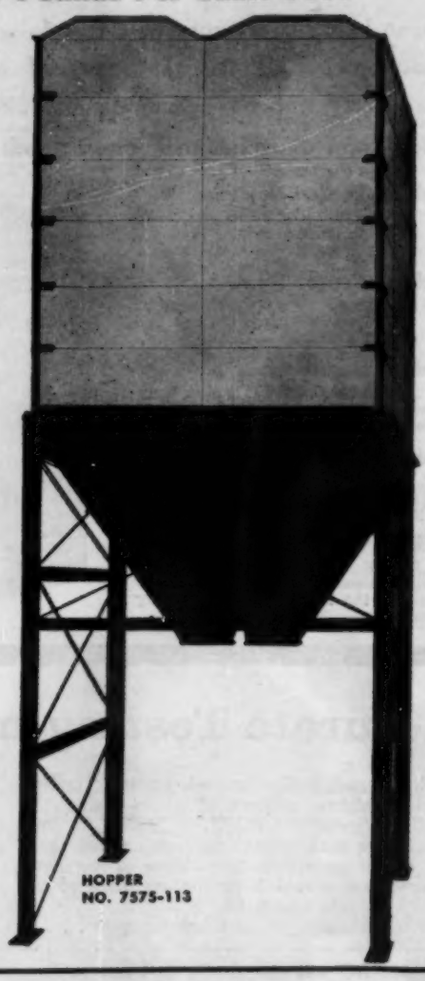
for grains • ingredients
concentrates • finished feeds

The Lemanco system of prefabricating steel BULK STORAGE BINS for inside or outside use is sufficiently flexible that custom planned storage can be offered at mass production prices and delivery. Modular design permits shipment by truck to all points.

The solidly welded base and the Lemanco patented corner holding the side sheets in tension introduces a new concept in the construction of feed storage facilities. Shown are two examples of bin clusters with capacities of 20 tons and 94 tons. These bin clusters are formed by using four hoppers with common wall partition giving four storage compartments.

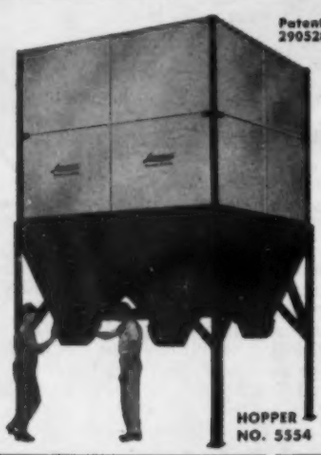
Lemanco bins are available for inside or outside storage with models available for side draw or corner draw. This construction permits joining in a straight line as well as shown.

When inquiring about these bins be sure to specify if pneumatic delivery will be used.

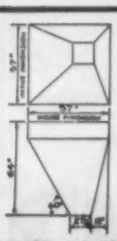


HOPPER NO. 7575-113

Patent 2905283

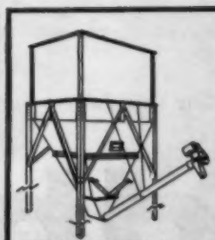


HOPPER NO. 5554



This corner draw hopper for augering "hard-to-handle" ingredients has a minimum pitch of 60° and two practically straight sides. Hoppers can be clustered as the 5554, above, with discharge into individual auger boots or into a common auger boot.

HOPPER NO. 5564



This general purpose side-draw bin for use with auger or weigh buggy has a capacity of 5½ tons and a maximum capacity of 8½ tons with another tier of sides. The bin can be used inside as well as outside. Inverted rotary gates, as shown, permit partitioning. Other type gates also available. The minimum 60° pitch of this hopper makes it useful for many applications. It can also be clustered.

HOPPER NO. 7670-A

HOPPER NO. 7670-G

Telephone or write today for prices and further information.

LEACH MANUFACTURING COMPANY

Lemanco

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KAFIR & MILO

Largest Dealers in Southwest

MID-CONTINENT GRAIN CO.

Board of Trade Victor 2-4671

KANSAS CITY, MO.

This man . . .

And this man . . .

have found the way to reduce disease risk in turkey feeding

They have seen how costly troubles can occur at any time. They have learned that diseases seldom attack singly . . . that a host of other troubles quickly attack birds weakened by disease or stress. Their successful solution to the problem of reducing disease risks through *protective feeding* follows.

"nf-180 pulled us through tight year"

Grower reported: "We couldn't have stood our usual mortality losses this year the way prices were. Using nf-180 kept disease down so we came through with very little trouble. Better feed conversion saved us money and our birds finished out well. Got a top price. Don't believe we could afford to raise turkeys without nf-180, especially in a tight year."

"Finished best flock in years"

This grower's last flock had made poor gains, suffered frequent off-feed periods and disease setbacks. His feed serviceman suggested nf-180 in the feed this year to prevent these troubles. Birds were started on 2 lb. level nf-180 feed and kept on it all through brooding period. Grower liked the size, vigor and livability of his flock so well he decided to continue 2 lb. level on to marketing. "Our death losses were the lowest and finish the best we'd had in years," he said.

"nf-180 gave us trouble-free season"

Turkey broiler grower had 8,000 on 2 lb. level of nf-180 from start to finish. Got to market without any disease troubles. Then put in another 8,000 for regular market. Kept these on 2 lb. level for 14 weeks and dropped to 1 lb. nf-180 per ton on to finishing. This flock just as trouble-free as first one.

"We don't start a

"It's taken care of most everything

Virgil Grigsby, Dover, Del., and his son raise some 30,000 turkeys a year. Five years ago paratyphoid swept through his flock until he was advised to check it with a 2-lb. level of nf-180. "And since then we haven't started a flock without using nf-180 protective feeding," he says. Here are his tape-recorded comments:

"Why did you try nf-180, Mr. Grigsby?"
"In 1954 we started with 14,800 Beltsville turkeys. Then paratyphoid hit and we lost down to 10,000 birds. I was told the only thing on the market that would do any good was a 2-lb. level of nf-180."

"How did it work?"
"We put our remaining 10,000 birds on nf-180 and at

"nf-180 is well

Harold Kauffman raises 10,000 to 25,000 turkeys each year in addition to operating the Farmers Feed and Grain store in Wayland, Iowa. These two businesses keep him up-to-date on feeds and medications. What's more, he knows just what is working best for farmers in his area. Here is how a recent conversation with Mr. Kauffman went:

"Mr. Kauffman, we're interested in your experience with nf-180. When did you start using it?"
"I started using nf-180 about 6 or 7 years ago for cold problems in my chickens and it did a good job."

"And you are using it now for your turkeys, is that right?"
"Yes, we use nf-180 all the way through the starting period. In fact, every pound of prestarter we've sold for the last 5 years has contained nf-180, and I don't think there is any other feed that can match it.

nf-180 protective

Turkey growers all over the country . . . men like Virgil Grigsby and Harold Kauffman . . . have good reason for their enthusiasm when talking about nf-180. They have discovered that it gives them a better chance to produce turkeys at a profit.

The reason is simple. nf-180 is the only drug that provides such wide-range disease protection. In fact, *it prevents and controls more turkey diseases than any other drug you can use.* With nf-180 on the job, from starting through finishing, you save more poults, they do better and you have fewer problems.

What's more, nf-180 is palatable. It stimulates feed

flock without nf-180"

that's happened to my turkeys."

once they stopped dying. They began to gain again so we kept them on a 1-lb. level from then on."

"You were satisfied with the results?"

"We figured it did an excellent job. And since then we don't start a flock without nf-180. It helps with blackhead, takes care of enteritis . . . in fact, nf-180 has taken care of most everything that's happened to turkeys on this farm."

"How is your feed conversion?"

"We have very good feed conversion. I think that nf-180 helps the birds do all they are capable of doing. If you keep your birds clean inside, they can't help but grow."

worth the money!" *says Harold Kauffman*

Whether nf-180 deserves all the credit, I don't know. But it does a good job."

"Have you ever used another drug in your starter?"

"Not since we started using the nf-180. We have been well satisfied with it. Maybe we go a little overboard . . . but nf-180 really does a good job."

"Do you also use nf-180 for specific diseases?"

"Yes, we shoot the 2-pound level to turkeys that are in a stress period . . . sometimes even a 3-pound level to straighten them out. And we use 4 pounds of nf-180 per ton of feed in treating blackhead."

"One more question. Do you figure nf-180 is worth what it costs?"

"Yes. nf-180 gets your birds off to a good start and keeps them in condition. I feel nf-180 is well worth the money."

feeding can increase your turkey profits

intake, improves growth and feed conversion, protects birds against stress. It more than pays for itself in better livability, improved growth and better feed conversion. nf-180 is safe for birds of all ages, including valuable breeder flocks. And men who rely on nf-180 to protect their breeder flocks report that it gives a dramatic improvement in hatchability. R. T. Maddox of Harrisonburg, Va., for example, says: "I've had much better hatchability since using nf-180. We started out last season with 76% hatchability and our overall average was 69% for the season. That compares with a 51% average a year earlier when we didn't use nf-180. Last year was my best for hatchability and profits since I've been in the turkey business!"

The chart on the next page shows how nf-180 gives disease-fighting versatility never equalled by antibiotics or other drugs. It also describes how you can set up a simple, effective nf-180 protective feeding program.

Remember that nf-180 is usually listed on feed tags as *furazolidone*, the scientific name for nf-180. Talk with your feed dealer about nf-180 medicated feeds for your particular needs. If he can't help you, send us his name and address. Write to Hess & Clark, Ashland, Ohio. We'll see that he gets complete details . . . and provide you with helpful information, too.

nf-180 prevents and controls more turkey diseases than any other drug

Comparison of nf-180 (furazolidone) with other drugs used in turkey feed medication

DRUG	Growth Stimulation	Typhoid & Paratyphoid	Paracolon	Para-typhoid	C.R.D. Sinusitis	Blue Comb	Hexa-mitiasis	Synovitis	Ulcerative Enteritis (Quail Disease)	Black-head	Stress Periods
***nf-180** (furazolidone) Level (grams)	YES 7½-10	YES P-50 T-100	YES P-100 T-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-100 T-200	YES P-50 T-100-200	YES P-50 T-100-200	YES P-100 T-200	YES P-50 T-100
Chlortetracycline Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES P-50 T-100
Oxytetracycline Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES 50
Bacitracin Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	NO	NO	NO	NO	YES P-50 T-100
Penicillin and Streptomycin Level (grams)	YES 2-5 (for penicillin)	NO	NO	NO	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	NO	NO	NO	NO
Penicillin Level (grams)	YES 2-5	NO	NO	NO	YES T-100	YES T-100	NO	NO	NO	NO	NO
Penicillin and Bacitracin — 37½B plus 12½P Level (grams)	YES 5 Bac 1 Pen	NO	NO	NO	YES P-50	YES P-50	NO	NO	NO	NO	NO
Erythromycin Stearate	NO	NO	NO	NO	P-? T-YES	P-? T-YES	NO	P-? T-YES	NO	NO	NO
2 - Acetylamino 5 - Nitrothiazole	NO	NO	NO	NO	NO	NO	NO	NO	NO	P-YES T-YES	NO
4 - Nitrophenyl Arsonic Acid	NO	NO	NO	NO	NO	NO	NO	NO	NO	P-YES T-NO	NO
A Sulfa—Tin—Arsenical Combination	YES	P - ? T - NO	NO	NO	NO	P-YES T-NO	P-YES T-NO	NO	NO	NO	NO

KEY: P: Prevention level in grams per ton of complete feed
T: Treatment level in grams per ton of complete feed

*Each pound of nf-180 contains 50 grams of furazolidone

Look how easy it is to set up an nf-180 protective feeding program

Right from hatching, turkeys are threatened by diseases and stresses. No matter how ideal the management may be, poults are critically sensitive to stresses which lower their disease resistance. Protective feeding with nf-180 reduces the chance of a serious disease outbreak . . . keeps birds healthy, gaining and profitable. Here are plans that fit your needs:

1. **STARTING PERIOD** . . . use 2-lb. level in all feed from start, through brooding and first week on range.
2. **GROWING-FINISHING PERIOD** . . . check your past history and local disease problems. Choose the protective feeding program you need:
   - 2-lb level continuously should be used to protect against blackhead, hexamitiasis and other diseases.
   - 1-lb. level continuously gives wide protection against stress and many diseases where blackhead and hexamitiasis are not likely problems.
   - week-a-month plan for areas where disease is not a serious problem. Many growers report good luck using a 2-lb. level of nf-180 stress feed one week a month to clean up birds, fight stresses and knock out disease organisms before they can build up and trigger trouble.
3. **BREEDER FLOCKS** . . . as soon as birds are selected put them on a feed with 2 lbs. nf-180 for 2 weeks. Then switch to a feed containing 1 lb. of nf-180 and keep breeders on this level through the laying season. In case of severe stress or disease outbreak, put birds back on the 2-lb. level until the danger has passed.
4. **TO TREAT SPECIFIC DISEASES** . . . use a feed with a 2-4 lb. level of nf-180. Refer to chart above for proper level.

Why take chances with drugs that fight only one or two diseases? Use nf-180, the one drug . . . the only one . . . that offers wide-range effectiveness.

Protect birds—from poults to processor—with nf-180.

HESS & CLARK, Ashland, Ohio
Division of Vick Chemical Company

nf-180®
brand of
furazolidone

SELLIN' SAM — By Jim Zilverberg

"Wouldn't it have been more practical to give Mr. Eberly an extension on his feed bill like he suggested?"

Iowa State Cattle Feeder Event Set

AMES, IOWA—The annual Cattle Feeders' Day will be held at Iowa State University June 24, Dr. Wise Burroughs said.

The program will start at 9 a.m. at the beef nutrition research farm northwest of Ames. Cattle to be shown include lots fed various levels of stilbestrol and lots fed high- and low-moisture shelled corn. Calves fed various antibiotics also will be shown.

A review of beef cattle research at the university for the past year will be presented at the Iowa State University armory beginning at 10:30 a.m. Animal husbandry staff members will discuss findings on the value of Tapazole and Agrozyme in cattle fattening rations, the value of tranquilizers in shipment of calves, substitution values of corn and pasture in cattle feeding and intensive methods of producing feeder calves on an Iowa farm.

Feed Grain Barter Exports to Italy Nixed

WASHINGTON—The U.S. Department of Agriculture has announced that Italy has been added to the list of countries to which barter exports of feed grains will not be authorized.

As in the case of other countries which have been placed in the "X" (no barter) category for an agricultural commodity, the exclusion is designed to avoid interference with U.S. export sales for dollars.

In addition to Italy, the list of countries to which barter exports of feed grains are not authorized includes Belgium, Luxembourg, Switzerland, the Netherlands, the Federal Republic of Germany and the United Kingdom.

BUILDING NEW MILL

EAST CHILLIWACK, BRITISH COLUMBIA — The East Chilliwack Fruit Growers Co-op Assn. is building a $75,000 new animal feed mill to replace its present plant at Chilliwack. Capacity will be 80-100 tons a day.

Richardson Scale Co. Selects District Chief

CLIFTON, N.J. — Appointment of John Kenyon as St. Louis district manager has been announced here by Richardson Scale Co.

John Kenyon

Richardson Scale is a firm of engineers and manufacturers of automatic weighing and proportioning equipment and controls.

Prior to this appointment, Mr. Kenyon was a sales engineer working out of Richardson's St. Louis office.

Mr. Kenyon has been with the firm for about 13 years.

G.L.F. Appoints Marketing Director

ITHACA, N.Y. — Appointment of Ronald N. Goddard as director of marketing for Cooperative G.L.F. Exchange, Ithaca, was announced by E. H. Fallon, G.L.F. general manager.

Caleb K. Hobbie of Trumansburg, formerly manager of the G.L.F. marketing division, has been named assistant to Mr. Goddard.

The post is newly-created, Mr. Fallon said, and reflects the increasing emphasis G.L.F. is placing on its marketing operations. Last year the cooperative marketed more than $20 million worth of its members' farm products.

As marketing director, Mr. Goddard will coordinate all G.L.F. marketing functions, including those of the G.L.F. egg marketing and livestock contracting divisions. G.L.F. also markets beans, dog food, grain, onions, flour, potatoes, hay and some fruits and vegetables.

NEW FEED COMPANY

FT. MORGAN, COLO. — Epstein, Harris & Co. has filed articles of incorporation to deal in livestock, hay, grain and feed of all kinds. Incorporators-directors are Harry and Alvin K. Epstein, and Morrie Harris.

INTENSIVE, CONTINUOUS PROGENY TESTING

Our pedigree mating pens contain some of the finest dual-purpose White Rock breeders you've seen anywhere. They have been individually hand selected from among thousands of proven top-performance birds . . . and have passed the most severe culling and production standards to be sure their offspring will provide you with the very best in meat and egg-type birds. This is one of the better than 100 individual pedigree mating pens we maintain on our 200-acre Connecticut farm alone. Your Pilch egg-meat combination female chicks will come from the progeny of these tested and proven performers.

WRITE TODAY! The Pilch story on Proven Quality will be sent to you upon request. Find out why it's the Breeding Research behind the pullet that pays off for Pilch customers.

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Southern Division: Talladega, Ala.

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New Bulk Facility Is Part of Mill Improvement Program

Northwest Cooperative Mills, Inc., has been carrying out a continuing improvement program at its big feed plant in St. Paul. This has involved a number of changes and additions in the way of materials handling and storage facilities—all aimed at improving efficiency and service.

However, the principal part of this improvement program is a new installation for storage and loading out of bulk finished feed. And this bulk shipping station is considered unusual for a number of reasons. For example:

- It is said to be the first plant in the Northwest, and possibly in the U.S., to use a duplex scale arrangement for weighing out bulk feeds for shipment by either truck or rail.
- The facility is capable of shipping finished feeds at a rate of 60 tons per hour.
- It is one of the first installations in the area to use mechanical conveying equipment of the half-round-bottom drag conveyor type to load storage tanks from both mash and pellet feed mill packing bins or work bins.

This bulk storage and shipping station is largely a push-button operation, and it can be operated by one man. Total bin capacity is 240 tons—eight square steel bins with a capacity of 10 tons each and eight round bins with a capacity of 20 tons each. Feed can be weighed and loaded into either rail cars or trucks, or it can be returned from the tanks to a mill packing station when desired.

Equipment

Equipment in addition to the bins includes 9-in. and 14-in. drag conveyors, a high capacity bucket elevator and two 5,000-lb. hopper scales with electrical read-out system to one adding machine and printer. The scales are located in an enclosed overhead position at one of two rows of bulk tanks and above the driveway for loading trucks. Adjacent to the driveway is a scale house which houses the control system.

Before installation of the new facility, the plant could readily load only rail cars with bulk feed, and then it had to be done directly from the continuous production line in the mill. To provide adequate service for increasing demand for bulk feed, explained production manager Herman Bohne, it was determined that the plant needed new bulk storage and loading facilities which would provide both fast and flexible service and still fit in with the existing plant.

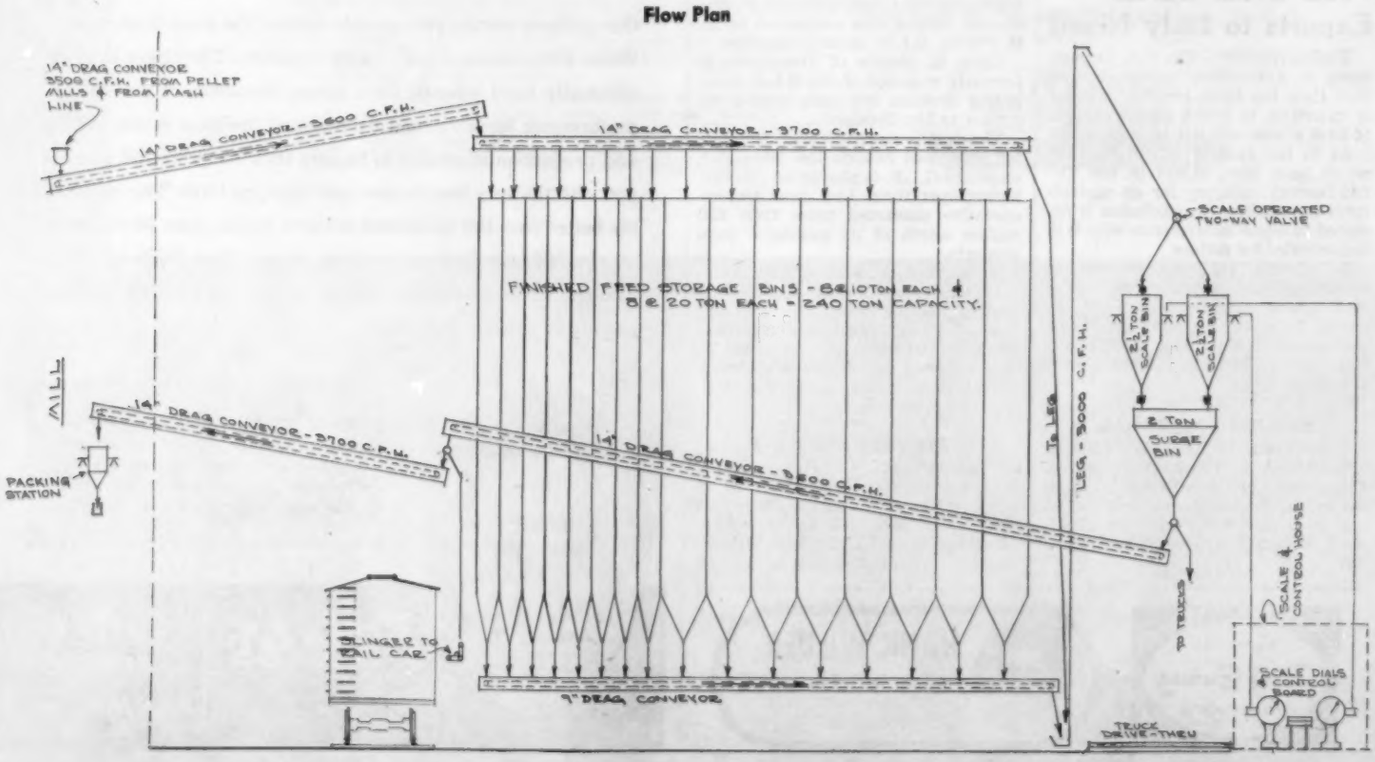
A survey made by A. H. Roffers, formerly general manager, and Henry Schipke, consulting engineer, showed that basic requirements would include: (a) fast loading (not less than 55 tons per hour); (b) shipping by rail, truck or back to the plant for packing; (c) smooth traffic flow with ample empty truck parking space off the street and no backing up or crossover traffic; (d) accurate scale weights; (e) provision for future ex-

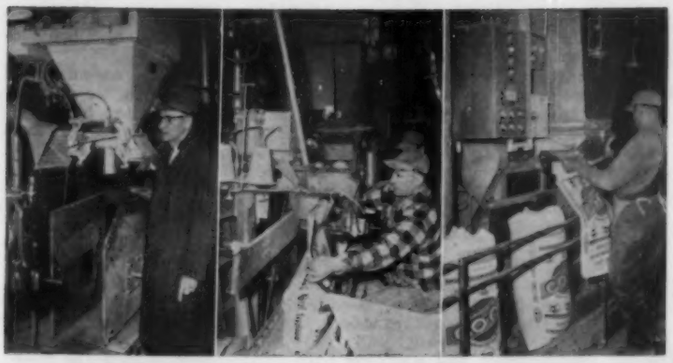
BULK INSTALLATION—A view of part of the bulk storage and loading out station at Northwest Cooperative Mills, St. Paul. Some of the bins are on the left. Scales and surge bin are above the truck drive-through. On the right is the scale house which houses the push-button control system.

CONTROLS—Herman Bohne, production manager, is shown by the control board and one of the scale dials in the scale control house. There also is an electrical read-out system to an adding machine and printer.

CONVEYORS—Part of the conveying equipment between the feed mill and the new bulk bins is pictured here. The photograph was taken from the second floor of the feed mill looking toward the storage bins.

Flow Plan


14" DRAG CONVEYOR 3500 C.F.H. FROM PELLET MILLS & FROM MASH LINE
14" DRAG CONVEYOR - 3600 C.F.H.
14" DRAG CONVEYOR - 3700 C.F.H.
FINISHED FEED STORAGE BINS - 8 @ 10 TON EACH & 8 @ 20 TON EACH - 240 TON CAPACITY.
SCALE OPERATED TWO-WAY VALVE
2 1/2 TON SCALE BIN
2 1/2 TON SCALE BIN
2 TON SURGE BIN
MILL
14" DRAG CONVEYOR - 3700 C.F.H.
14" DRAG CONVEYOR - 3600 C.F.H.
PACKING STATION
To LEG
LEG - 3000 C.F.H.
SLINGER TO RAIL CAR
9" DRAG CONVEYOR
TO TRUCKS
SCALE & CONTROL HOUSE
SCALE DIALS & CONTROL BOARD
TRUCK DRIVE-THRU



PACKING—Now bagging scales were installed recently to speed operations and improve efficiency. In the first photo, Herman Bohne, production manager, is shown with a new Bemis Fastr-Weigh packer. In the second photo is a packing station which has a new Richardson unit. In the third picture is a new Thayer packing scale installed to replace two older scales.

pansion of the station, and (f) efficient service. Along with these requirements, they had to consider limited land area and traffic congestion.

Contract plans and specifications and field supervision for the facilities were provided by Henry Schipke & Associates, consulting engineering firm, Minneapolis, and erection was by August Cedarstrand Co. Suppliers included Howe Scale Co. (automatic scales and control panel); Strong-Scott Mfg. Co. (drag conveyors and bucket elevator); Minneapolis Tank & Mfg. Co. (storage bins), and Christensen Electric Co. (power and control wiring).

The Northwest Co-op Mills plant is located in St. Paul and is a large continuous line type mill. The plant makes feed for three farm supply cooperatives in the area—Farmers Union Central Exchange, Central Cooperative (Superior, Wis.) and Midland Cooperative.

In addition to feed, the firm handles seed and operates fertilizer plants at Winona, Minn., and Green Bay, Wis.

Handling

The new bulk facility is located opposite the feed mill's pelleting station, across two railroad tracks from the mill and adjacent to a seed warehouse. Pellets are conveyed to the bulk tanks by overhead drag conveyor from packing bins in the mill. Mash feed can by-pass the packing bins and go directly to the bulk tanks utilizing the same conveyor.

When feed is loaded out of the hopper-bottom steel bins (equipped with air gates), it is moved by drag conveyors beneath the bins and raised with a bucket elevator into either of the two scales at the end of the tanks opposite from the mill and railroad tracks. While one scale is being discharged, the other is being filled.

BINS—In the foreground of this picture are part of the scale house and the structure for the duplex scale system for weighing out bulk feed. Extending back toward the feed mill in the background are eight round bins and eight square bins, with total capacity of 240 tons.

For truck loading, the feed is discharged directly from a surge bin beneath the scales into trucks below. For loading cars, the feed is moved by inclined drag conveyor which extends between the tanks and back to the track location, where feed is spouted into cars. The same conveyor system is used to take feed back into mill packing bins when desired.

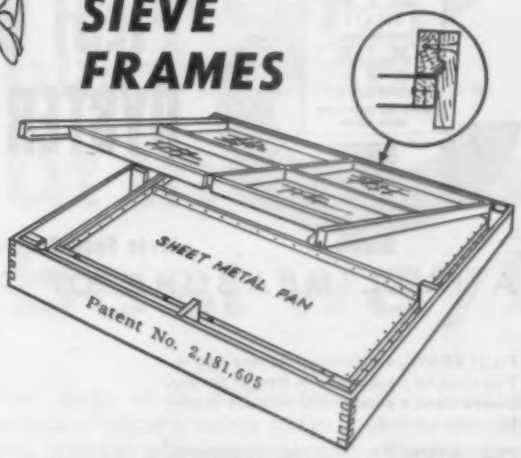
As noted above, the shipping station is a one-man operation. A manual operation is necessary to set conveying equipment for shipping by truck, rail or back to the mill for packing. Once these settings are completed, the entire loading operation for any of the three delivery points can be controlled by push-button. All

TURNTABLE—A turntable with a loading jig on each side is used to palletize feeds at the Northwest Co-op plant. Empty pallets and loaded pallets are moved to and from this station with forklift trucks. There is an installation like this for each of two belt conveyors leading from packing stations to the warehouse.

HUSTLER

Increase Bolting Capacity and Cut Sieve Repair with NOR-VELL Demountable-Tray

SIEVE FRAMES



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equipment can be started or stopped at the loading point.

The gates for the bottoms of the storage bins are fitted with pneumatic cylinders and are remotely operated at the control console in the scale house. To complete the loading operation, the operator returns to the scale house and manually runs out the small amount of feed in the system and makes the "final" print showing accumulative total weight delivered.

In weighing, the full weight and empty weight of each scale draft are printed on a double tape by an adding machine. The electric adding machine automatically adds the "full" weight on the scale and subtracts the "zero" or "tare" weight of the scale, thus providing a composite record of all weighments and an accurate shipping weight for all feed loaded into truck or rail car. A duplicate scale ticket is provided for the buyer.

The new system can load a railroad car in less than a half hour and a 12-ton truck in less than 15 minutes of total elapsed time.

The installation, said Mr. Bohne, is expected to facilitate bulk shipping greatly as the demand for bulk feed increases.

Other Improvements

In addition to the new bulk installation, the plant improvement program the past couple of years has included a number of other features.

For one thing, additional warehouse space for bagged feed was added. The added concrete warehouse is 80 by 185 ft. Bags conveyed from the packing lines are placed on wood pallets and handled by forklift truck.

In palletizing, an elevated turntable with a loading jig on each side is used. Feed coming into the warehouse by belt conveyor is placed on a pallet on one side of the turntable. At the same time, lift trucks can put empty pallets in the jig on the other side. When a pallet load is ready, the loading man turns the table, a truck operator picks up the loaded pallet, and bags are put onto an empty pallet on the opposite side of the table. There is an installation like this for each of two belt conveyors leading to the warehouse.

New bagging scales also were installed recently to speed operations and effect labor savings. For mash feed, a new automatic Thayer packing scale was installed to replace two older and slower scales and improve accuracy. This scale is operated usually at a rate of 10 100-lb. bags per minute.

For pelleted feeds, an automatic Bemis Fastr-Weigh packer was installed. This installation has a St. Regis bag settler-conveyor. Also, there is a new Richardson automatic bagging scale.

Another change was the elimination of the need for elevating hot pellets. Two California coolers were moved from an upper floor location and placed under two California pellet mills located on the second floor.

A batch mixer is used for mixing mineral feeds and milk replacers. Formerly it was necessary to sack these feeds directly from the mixer. To improve this operation, the mixer was moved, and a Superior Fluidizer was installed so that the mixes can be pneumatically conveyed from the mixer up to bins on an upper floor. These products can then be bagged from these bins more conveniently.

Engineering on these various changes, as well as the bulk station, was provided by the Schipke firm.

Through the continuing improvements, said general manager W. E. Jones, the plant continues to improve its efficiency, lowering costs and improving service.

1959 Delaware Feed Tonnage Totals Told

DOVER, DEL.—A total of 402,440.5 tons of commercial feed was sold in Delaware in 1959, according to figures compiled from manufacturers' tonnage reports by the State Board of Agriculture.

Poultry feeds comprised the lion's share of the tonnage with medicated poultry feed reaching 245,891.38 and non-medicated hitting 40,989.5 tons. Corn products were next with a tonnage of 28,602.34.

A total of 72,673.7 tons was tax exempt and tax was paid on 329,766.8 tons.

State of Delaware
Commercial Feed Tonnage Report

Kind	Tons
Alfalfa Products	7,933.60
Beet Pulp	536.50
Bird Food	11.10
Brewers Products	1,296.50
Citrus Pulp	76.80
Corn Products	28,602.34
Cottonseed Meal	140.26
Dairy Feed	12,616.66
Distillers Products	1,659.30
Fish Products	15,745.60
Goat Feed	5.34
Hog and Pig Feed	3,212.95
Horse Feed	200.14
Linseed Oil Meal	101.00
Meat Products	9,196.05
Milk Products	535.70
Mineral Feed	3,695.63
Miscellaneous	4,831.19
Oats	147.00
Peanut Feed	19.50
Pet Foods	2,792.19
Pigeon Feed	103.66
Poultry Feed—Medicated	245,891.38
Poultry Feed—Non-medicated	40,989.50
Rabbit Feed	209.69
Soybean Oil Meal	15,498.00
Wheat Products	6,385.92
Total Tons	402,440.50
Number tons tax exempt	72,673.70
Number tons tax paid on	329,766.80
Total for Year	402,440.50

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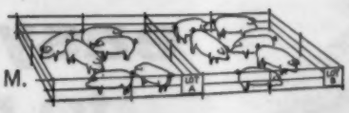
Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.



The Effect of Floor Temperatures On the Growth of Market Hogs

• E. A. Kazarian and J. A. Hoefer, Michigan State University; Quarterly Bulletin, Vol. 42, No. 3, February 1960, pp. 541-547.

ABSTRACT

Five experiments were conducted through three summers and two winters starting with the summer of 1957 with floors heated in winter and cooled in summer by means of copper tubing imbedded in concrete. The water in the tubes was circulated, and heated by an electric heating coil submerged in a can type milk cooler. In the summer the water was cooled by a drop-in type of refrigeration unit. For each experiment pigs 6 to 8 weeks old were used in different floor treatments as listed in Table 1, using two lots per treatment of five pigs each.

Statistical analysis of the results showed that under the conditions of these experiments, providing either cooled floors in summer or heated floors in winter did not influence the performance of swine from weaning to market.

The pigs were maintained in a pole type building, without insulation, with 1" wood siding and a steel roof. Drafts at the floor level were eliminated by using ¾" exterior plywood to form pen partitions. A polyethylene ceiling was used during part of the experiments to decrease the radiation from the metal roof to the floor.

COMMENTS

It is somewhat surprising to observe that even under Michigan conditions the pigs were not stressed enough during the winter period to affect performance in unheated pens in an uninsulated building. Apparently housing in a draft-free pen was adequate to provide a satisfactory environment. Purdue (1959) has also indicated that weaned pigs can withstand rather cold temperatures (40°F) if housed in draft-free pens and allowed to become acclimated to it.

Preliminary experiments at Iowa have shown that there is little difference between hogs kept on cooled floors and those without cooled floors in rate of gain and feed conversion. Earlier reports (1952-53) by English workers showed that electrically warmed floors for fattening pigs did not improve feed efficiency or daily gain.

Quite a bit of work has been done on the effect of cooling hogs and adjusting their environment by experiment stations during the past 10-12 years. There seems to be a little question that providing some sort of shade or cooling for sows is good economic practice. Heitman and associates early showed that increasing the ambient temperature of pregnant sows increased respiration rate, body temperature, and reduced feed and water consumption. Oklahoma workers (1957) showed that the size of fall litters could be increased by protecting the sows and gilts by giving them access to a mist sprayer under open shade. Such sows and gilts averaged 10.06 live pigs farrowed per litter compared to 7.71 pigs average for non-sprinkled ones. During the experimental period the maximum temperature was above 90° Fahrenheit on 77 days.

Field trials by Kansas workers and practical experience at Conner-Praire Farms, Ind., have shown good results by using a central air-conditioning unit and piping cold air in a duct to the pen floor so the sow can breathe cooler air. Purdue (1957-59) has reported that cooling both sows and boars with mist type sprays improves litter size. Their results were:

Boars	Sows	Litter Size
Uncooled	Uncooled	7.80
Cooled	Uncooled	8.86
Uncooled	Cooled	8.50
Cooled	Cooled	9.55

Practically all of the trials with fattening pigs show a response by providing some sort of shade, wallow or cooling for fattening market hogs also. For example, California workers in a report (1958) covering 24 experiments involving 94 hogs and 367 hog-periods showed that it was possible to develop values for average daily gain for specific conditions of air temperature and bodyweight. The constant air temperature at which daily gain was at a maximum varied from 61°F. for 350-lb. hogs, to 73.5°F. for 100-lb. pigs under their conditions.

These same investigators have shown that under practical hog raising conditions, cooling growing and finishing pigs by some means when temperature ranged from 58°F. to 94°F. was profitable, but the method

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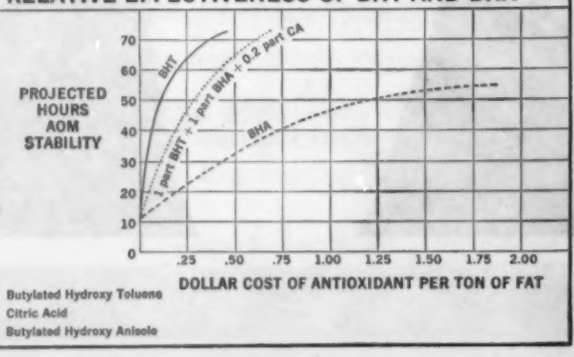

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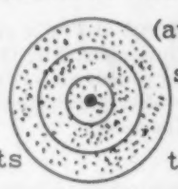
The end result: a feed that more consistently delivers the proper amount of growth-giving, health-protecting penicillin to the animal.

Simple comparison shows how Micro-Pen is dispersed. ...Ordinary feed-grade penicillin (average size, 300 microns) gives a rifle-like effect. The dispersion pattern is small and covers only a fragment of the target or ton of feed. Micro-Pen (average size, 75 microns) gives a  shotgun-like effect. The dispersion pattern is widespread and blankets the target or ton of feed.

*Micro-Pen provides more particles per unit of feed**

APPROXIMATE NUMBER OF PENICILLIN PARTICLES/GRAM OR POUND IN A SUPPLEMENTATION LEVEL OF 4 GRAMS/TON

AVERAGE SIZE (In Microns)	PARTICLES/GRAM	PARTICLES/POUND
25	90	42,000
50	11	5,160
75	3	1,320
100	1	546
150	0.6	258
250	0.1	42
300	0.05	24

*Please note that Micro-Pen contains 55 times more particles per unit of feed than the penicillin which measures 300 microns.

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ELANCO

TABLE 1

	Summer 1957 June 13-Sept. 5	Winter 1957-1958 Nov. 26-March 4	Summer 1958 April 29-Aug. 7	Winter 1958-1959 Nov. 20-Feb. 24
Lots 1 and 2	65° F. dropped to 60°F. Aug. 12	75°F.	70°F. dropped to 65°F. July 1	80°F.
Lots 3 and 4	75°F. dropped to 70°F. Aug. 12	65°F.	80°F. dropped to 75°F. July 1	70°F.
Lots 5 and 6	control lots—no temperature regulation	control	control	control (Note—Heat failed during last 28 days of experiment—70 days of controlled heat—28 days without heat)
	Summer 1959 April 3 to July 24			
Lots 1 and 2	80°dropped to 75°F. May 1			
Lots 3 and 4	70°F. dropped to 65°F. May 1			

of cooling did not seem to make very much difference. The cooling methods used included wallows in the sun and shade; wallows combined with increased air motion from a fan; part-time access to a small air-conditioned house, and confinement to a pen outside a large hog-barn. A control pen wasn't cooled at all. All cooled animals gained weight more rapidly over the 70-day test. They averaged 1.43 to 1.51 lb. gain per day, compared with 1.30 lb. gain for the controls. It should also be pointed out that although there were no significant differences in daily gains by the hogs cooled by the various methods, the feed efficiency was best in the group which had access to the air-conditioned house, and poorest in the controls.

Similar results have been secured by many other workers, including those at Mississippi, Purdue, Iowa, Kentucky, Florida and Georgia. From these experiments it becomes quite obvious that if the summer is mild and rainy little or no response will be secured. Examples of this are seen in experiments from Kentucky, Purdue and Florida. On the other hand, when summer temperatures on the average exceed much over 80°F., results will be secured by some method of cooling hogs. Generally, the gain response will run about 0.2 lb. per day. Aluminum-roofed buildings are definitely cooler than steel-roofed ones and will give better results. Under California conditions, straw shades were one of the best materials tested.

The experiments also show clearly that swine will gain in weight about as fast and efficiently under naturally varying temperatures as at constant temperatures. An extremely hot day will not set hogs back much if followed by a cool night or day; however, if persistent temperatures over 80°F. are encountered for much over 24 hours, gains and feed efficiency will fall off if some means of cooling is not provided since hogs cannot sweat.

Although the current Michigan work does not tend to support it, there is some feeling among hog men that when environmental temperatures fall much below 45°-55°F. during the growing-finishing period, gains and feed efficiency will fall off. Thus, they maintain that it will pay to insulate and heat buildings for hogs if average daily temperatures during the winter months fall much below this. Iowa workers point out, for example, that the average daily January monthly temperature in Iowa is near 30°F. and that probably some insulation is warranted. We need more research on the problem of insulated vs. uninsulated buildings for growing-finishing hogs with the expansion of year-around farrowing on many midwestern farms.

Joins Grain Firm

STOCKTON, CAL.—Val Olson, a well-known grain merchandiser in northern California, has joined the newly-organized F. B. Young Grain Co., Stockton.

Mr. Olson has been in the grain business for the past 17 years and was associated with the Phil O'Connell Grain Co. for the past eight years. In addition to his grain trading activities, Mr. Olson is a sheep and cattle rancher in the Clements area.

ROGER B. CLARK DIES

CHICAGO—Roger B. Clark, 57, former sales manager of the Perk Dog Food Co., Chicago, died recently in Tucson, Ariz. Mr. Clark moved to Tucson from Evanston, Ill., two years ago. He is survived by his wife, three sons and a daughter.

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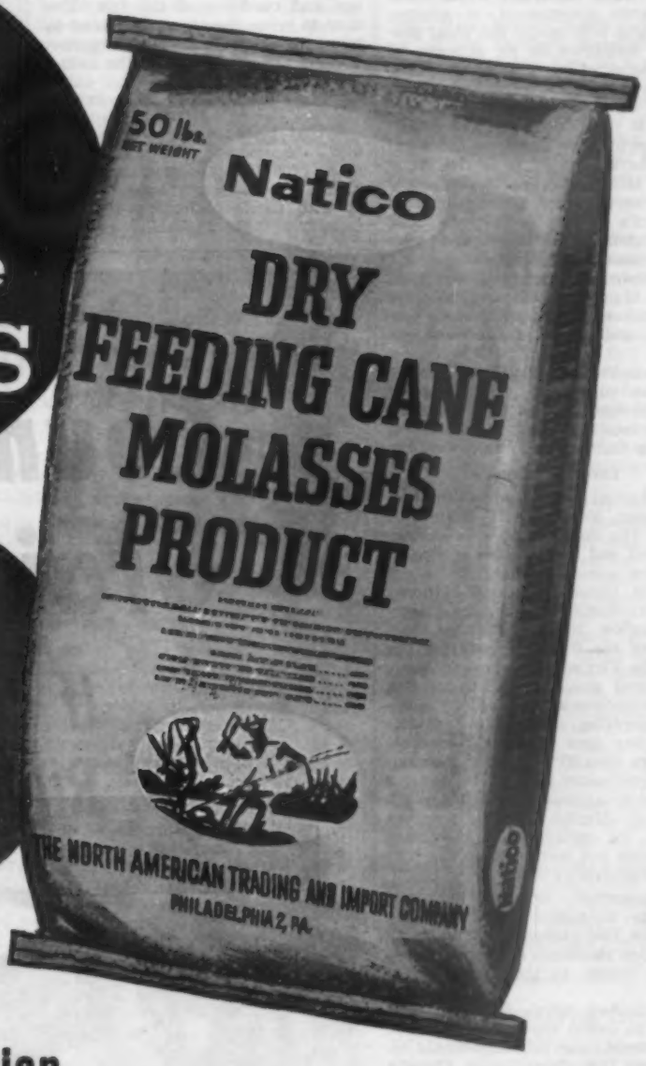

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Fish Meal Imports Prompt Appeal for International Talks

WASHINGTON—An important ingredient industry is having some serious headaches—and three organizations representing the U.S. fish meal industry have jointly appealed to the Secretary of State as a "doctor" to help them find a cure.

They want the State Department to arrange government-to-government talks with major fish meal producing countries as an attempt to "solve some of our mutual problems, such as production, distribution and market conservation."

Behind this illness and the appeal is the swift drop domestic fish meal prices have suffered since the latter part of 1959 fishing season. These low prices have forced some fish meal processors in this country to close down indefinitely and others to curtail production drastically.

U.S. fish meal interests place most of the blame for the trouble on a "tremendous" increase in foreign production and expanded fish meal imports.

"The sudden influx of large imports and the continuing availability of these foreign supplies turned the industry into chaos in a matter of three to four months," they say.

Three Petitioners

The formal application to Christian A. Herter, Secretary of State, for calling the conference with certain fish meal and fish solubles producing countries came from the industrial products division of the National Fisheries Institute, the only fishery organization representing all segments of the fishing industry in the U.S.; the Virginia Fishermen's Assn., a national group of menhaden fish processors formed originally by members operating only in the Chesapeake Bay area but now representing more than 95% of all of the menhaden processors in the U.S., and the Menhaden Advisory Council for the Gulf of Mexico, which numbers among its membership menhaden processors not members of the Virginia Fishermen's Assn.

A spokesman for the industrial products division of the National Fisheries Institute said "virtually all menhaden producers are represented" in the appeal to the Secretary of State.

The nations whose representatives would be called together if the plan were carried out probably would include the U.S., Peru, Japan, Canada, South Africa, Denmark, Iceland, Norway, Angola and Chile.

Said the industry representative: "The menhaden industry has been recognized as one of the more healthy fishing industries in the U.S. and until recently has never felt the need for government aid.

"Prices during the 1958 season were reasonably satisfactory with fish oil producing approximately 6½¢ lb., fish meal $140 ton and solubles $90 ton. At the beginning of the 1959 fishing season the prospects were bright and a fairly good season was anticipated. The oil remained at approximately 6½¢ lb. through the season. However, during the latter part of the 1959 fishing season, which extends from approximately June 1 to Oct. 15, the price of fish meal began to drop very rapidly so that today it is selling for less than $100 ton, or a drop in excess of $50."

He said solubles had fallen in price to a current value of less than $40 ton, or a drop of about $50. In the menhaden business, he said, fish meal and solubles represent about 65-75% of total sales, depending upon the yield of oil, which depends upon the age and condition of the fish. The drop in price, therefore, amounted to more than 30% for meal and approximately 55% for solubles, the industry spokesman explained.

The Cause

"What is the cause of this trouble?" he queried. "The immediate cause would be the tremendous increase in foreign production, together with the large imports into this country and the availability of large foreign supplies which still are pressing upon our U.S. markets."

Example: Peru in 1955 produced 22,000 tons of fish meal; in 1956, 37,000 tons; in 1957, 78,000 tons; in 1958, 139,000 tons, and in 1959, 300,000 tons.

The institute representative said it is estimated by producers who have visited Peru that the country's 1960 production "can well be over 400,000 tons." And he added, "It can be seen, therefore, that in a period of six years Peruvian production has increased about fifteenfold."

U.S. production of fish meal during the same years, according to this source, was: 295,000 tons in 1956; 264,000 tons in 1957; 248,000 tons in 1958 and 295,000 tons in 1959.

"The two countries—Peru and the U.S.—do not, of course, represent the entire production of fish meal," he noted. Canada is a substantial producer and has heretofore exported a large amount of fish meal into the U.S., he said. Japan, Norway, South Africa, the United Kingdom, Germany and Angola are other major producers.

Importation of fish solubles jumped in volume in 1957, again in 1958 and also in 1959, said the institute official. Current annual imports are about nine times what they were five years ago, he related. Denmark is the principal exporter of fish solubles to this country. In addition, Canada and South Africa export sizeable amounts to the U.S.

Present world production of fish meal and solubles is currently estimated at about 1,250,000 tons annually. The fishing industry groups asking for the talks with the governments of fish meal producing countries believe the U.S. can absorb at the present time about 400,000 tons, or about one third of the available production. Western Europe is the next largest user and could also absorb approximately one third of the available production. This, they say, would leave the remaining one third to be distributed to the rest of the

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world, particularly to under-developed nations.

Returning to his earlier statement that the menhaden industry in the U.S. was in a healthy condition until imports started pouring in last year, the National Fisheries Institute spokesman noted that 95% of the 1958 production of meal normally would have been disposed of by March 1, but as of March 10 "in excess of 40% of last year's production was still on hand and almost no sales were reported." A large portion of this production, he said, is in public warehouses where the processing companies are paying storage, interest on borrowed money, insurance and other incidental expenses.

What are the prospects for the 1960 fishing season?

"Normally, by March 1 producers of menhaden fish meal and solubles have sold or have made contracts to sell at least 75% of the estimated production for the coming season," said the information source. "But to the best of our knowledge, not one sale has been made or one contract entered into between the producers of menhaden fish meal and solubles and consumers covering the production for the next season.

"If meal and solubles continue to sell at approximately the same levels as they are now bringing, it is estimated that the selling prices will be from $20@30 ton below production cost. No further clarification is needed to show that the fish meal companies have the alternative of losing a large amount of money or closing down indefinitely."

The three organizations seeking help from the State Department say their membership believes government-to-government discussions may open the door to developing markets in underdeveloped countries for needed animal proteins which are in short supply in many areas of the world.

It is believed, also, that the talks could involve discussions of means of disseminating technical information among producing countries, especially to advance the use of fish meal as human food instead of restricting it to poultry and animal consumption.

And, the talks, say representatives of the fishery organization, could lead to solutions which would "make it unnecessary for countries which are producing large quantities of meal such as the U.S. from being forced to establish trade barriers in order to protect their domestic industry."

Said the spokesman for the petitioners: "It is our considered judgment that the present world production of fish meal and solubles can be consumed if proper means of distribution are followed, but at the same time it is not our purpose nor do we wish to affect the economy of other nations.

"On the contrary, we wish to work with them in setting up a program of mutual cooperation. It must be borne in mind, however, that our situation is so acute that we cannot stand aside and watch our industry being destroyed without taking corrective steps."

To illustrate the importance of the fish meal and solubles industry to the U.S., the industry representative said states producing menhaden extend from Maine to Texas.

"The menhaden is this nation's largest fishery. It represents approximately 45% of the total fish landed by volume in the U.S. over the past 10 years. Every state on the West Coast, including Alaska and Hawaii, also has fish meal and fish solubles production even though they may utilize species of fish other than menhaden," he reported.

There are approximately 40 processing plants in the U.S. operating on the Atlantic and Gulf Coasts. They are valued at from $25 million to $30 million. In addition, as reported by the industry officials, some 2,275 large and approximately 650 auxiliary fishing vessels have a value of near $35 million, plus about $5 million in extra equipment, making a total investment in plants, boats and equipment of some $70 million.

Annual earnings of the 4,100 shore workers and 4,800 fishermen employed on vessels in the menhaden industry amount to more than $25 million. Supplies, including nets, fuel, shipbuilding and ship repairs, amount to near $25 million.

"These allied industries support an untold number of employees," the spokesman stated. "Altogether we are speaking of an industry that has an annual output of from $50 million to $60 million."

"Keep your foot off the scale! I've told you there's no need to cheat to make profit weights."

CARTOON PROMOTION — This is one of the cartoons distributed by Chas. Pfizer & Co., Inc., as a part of its Life Cycle Management program. These cartoons are a supplemental part of Pfizer's program of alerting farmers to the need for paying greater attention to managing and feeding hogs for maximum income.

Poultry Festival Set

DECATUR, ARK.—The Northwest Arkansas District Poultry Festival will be held here May 28.

The festival, held in connection with the annual Decatur homecoming, is one of four district celebrations being held prior to the statewide festival slated for June 24 and 25. The festivals are held to publicize the state's $100 million poultry industry.

ALFALFA IN CALIFORNIA

SAN FRANCISCO, CAL.—California farmers now grow alfalfa hay on 1.1 million acres of land and the annual value of the crop is $128 million, according to the California Farm Bureau Federation's field crops department.

Henrietta Grain & Storage Company Uses Diversified Types Of BS&B Equipment For 1,485,000 Bu. Country Point Warehouse

This "King Sized" country point grain storage facility located at Henrietta, Mo., is the result of a continuing growth and expansion program that began three years ago with the erection of 14 BS&B 4400 Bu. Grain Bins —each equipped with In-Storage Drying—to handle the owner's own grain production.

Four of these bins are additionally equipped with 135,000 b.t.u. supplemental heat units and humidistats. These are used for maintaining wet grain in condition when incoming volume is greater than the capacity of the elevator dryer. They are also used for drying certified seed wheat. Also included in the original installation were two 1000 Bu. Bulk Feed Tanks which served as "wet" grain holding bins.

Later, three BS&B Metal Buildings were added for flat storage of CCC grain. Each building provided an extra 205,000 bushels of storage capacity.

In 1959, still further expansion was needed. This was the year that BS&B King Size Grain Bins and Corrugated Tanks were establishing a new concept for grain storage and handling throughout the industry. This time, 20 BS&B 36,000 Bu. King Size Corrugated Tanks and six BS&B 9,000 Bu. King Size Grain Bins were added to provide an extra 805,000 bushels of storage capacity. All tanks are equipped with aeration, and can be individually loaded or unloaded.

Today, this 1,485,000 Bu. installation serves a threefold purpose:

a. It serves as a country point elevator to handle local storage requirements.

b. It provides facilities for terminal storage of CCC take-over.

c. It provides drying and storage service for farmers in the area served, and for owner's own private grain production.

The installation is flexible enough to allow for the storage, handling and segregation of various types and grades of grain, as evidenced by the current storage at Henrietta Grain & Storage Company.

With different types of grain storage equipment being operated side-by-side, it is an easy matter to make accurate comparisons of operating costs and advantages of one type of equipment over another. For example, the BS&B King Size Tanks cut both loading-in and loading-out time by a full 50% as compared with flat storage. In addition, the tanks provide more flexibility and diversity of grain storage and handling, and occupy less ground space than flat-type storage.

Whatever your type of operation ... warehousing ... grain bank ... grain buying station ... feed dealer ... BS&B Expansion Planning Service can save you time. BS&B installations are pre-planned to match the flexible growth requirements of your particular business—*you build what you need, as you need it!* No wasted time or money. Gives you the best possible utilization of buildings, land and facilities. Write today for your free copy of "BS&B Guide For The Expanding Elevator." This exclusive planning guide can help you select the storage facilities that are economically in line with your needs for today, and the future.

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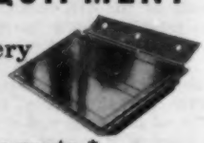

*Mill-Mutual Approved

Stearns Series 50 permanent plate magnets are available in standard sizes and strengths, 4-inch to 48-inch, to fit practically all present designs of hammer mills, roller mills, burr stone mills, feed conveyors, choppers, mixers, rotary cutters and many other processing machines.

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Stearns also builds a complete line of permanent magnet drums and pulleys for protection against "hardware" damage.

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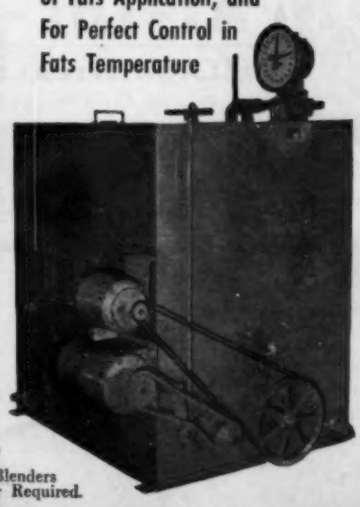

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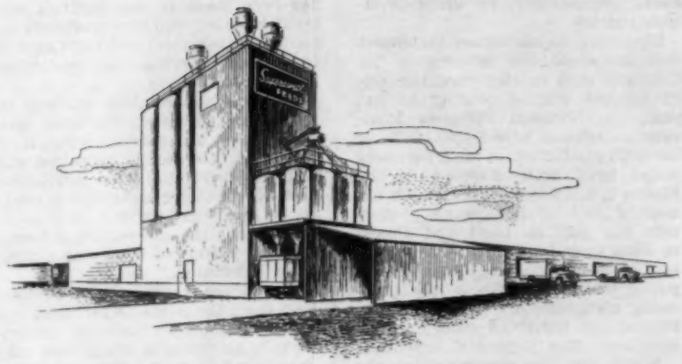

NEW SUPERSWEET MILL—Shown is an artist's sketch of the new mill to be constructed at Le Mars, Iowa, by Supersweet Feeds division of International Milling Co., Minneapolis. Production at Le Mars is expected to start by the end of the summer. The mill will include bulk handling and storage of products and other modern techniques of production. (More details, Feedstuffs, April 9, page 4.)

Carolina Group Elects Officers

RALEIGH, N.C.—The Carolina Grain & Feed Dealers Assn. held its annual meeting here April 15 and elected Leroy Powers of Powers & Winslow, Moyock, N.C., as president. T. C. Flood, Eastern Carolina Feed & Seed Co., Elizabeth City, is the retiring president.

Other new officers elected were: Don Biggerstaff, Gorham Milling Co., Rocky Mount, vice president, and Ollie W. Faison of the North Carolina Department of Agriculture was reelected secretary-treasurer.

New directors of the association include A. A. Fretwell, Spartan Grain & Mill Co., Spartanburg, S.C.; Fernie Laughinghouse, A. D. Swindell Farms, Pantego, and Ray Flowers, Cargill, Inc., Wilson.

According to Mr. Faison, a total of 144 grain and feed firms in North and South Carolina are members of the association. The group voted to extend membership to Virginia grain and feed dealers on an individual basis and possibly change the name later to Southeastern Grain & Feed Dealers Assn.

Mr. Faison said the association will hold a summer meeting around the middle of July, probably at Myrtle Beach, S.C. The next annual convention will be held in Raleigh in mid-February, 1961, according to present plans.

The association's recent convention here followed a marketing and management clinic conducted at North Carolina State College by specialists of the college and the State Department of Agriculture. Theme for both the clinic and the convention was "Adjusting Your Business to Changes in Management and Marketing."

Association directors voted to support the efforts of the North Carolina Grain Commission to promote better grain storage and handling facilities for Tar Heel farmers.

Trustees named by the outgoing president include Leroy Powers, the new president; H. L. Davis, Davis' Mill, Seven Springs, and R. L. Gibbs, R. L. Gibbs, Inc., Engelhard.

Announcement was made that the association and the State Grain Production and Marketing Committee will sponsor a series of grain schools across the Carolinas in May.

Mr. Faison said dates and locations are Bamberg, S.C., May 17-18; Darlington, S.C., May 19-20; Goldsboro, N.C., May 24-25; Charlotte, N.C., May 26-27.

A banquet meeting climaxed the convention program here April 15. Featured speaker was Edmund Harding, Washington, N.C.

Poultry Servicemen's Clinic Set at Purdue

LAFAYETTE, IND.—A clinic for poultry servicemen has been scheduled for June 2-3 at Purdue University, according to Joe W. Sicer, extension poultryman and chairman for the event.

The program is being designed especially to help poultry servicemen meet the problems they encounter daily in their work with laying, broiler and turkey flocks. It will cover problems of disease control, management practices, feeding and egg quality.

There will be a "Stump the Experts" panel in which the servicemen can raise any question with the panel of specialists in a further effort to find answers to problems that must be met in the field.

Included in the program are such topics as, "Why Some Fresh Eggs Look Bad," "Our Experience With Grain Sorghums and Turkeys," "What We Know About Restricted Feeding of Pullets," "Coccidiosis Vaccination," "Infectious Hepatitis" and "Fundamentals of Ventilation."

The meeting will be held in the auditorium of Purdue's new Life Science Building.

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No. 3A—1959 Highest score of uniformity (males & females)—Peterson x Nichols 108 91.27

(We'll be glad to show you the complete results of these and many other tests)

Grow-out Profits?
YOU Win 'Em!

Look at this dealer's records (all Nichols ♂)

Grower	A	B	C	D	E	
Started:	29900	3400	3000	10500	13000	59,800
Sold: (Nov. 1959)	29934	3390	3024	10544	13055	59,947
Age:	10 wks 3 days	10 wks 6 days	10 wks 4 days	10 wks 3 days	10 wks 2 days	
Avg. wt:	4.20	4.63	4.33	4.24	4.09	
Feed conv:	2.39	2.54	2.38	2.40	2.29	
Conv. U/wt:	1.81	2.09	1.95	1.84	1.80	

Feed cost per lb. of meat (based on 3 lb. bird & 2.40 feed conversion) —.0869¢

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FEEDSTUFFS reprints

The following reprints of articles which have appeared in Feedstuffs may be obtained on order from Feedstuffs' Reader Service Department:

3. **Mobile Feed Milling**—a series of five articles—by Al P. Nelson.. 50c
26. **Feedstuffs' 1960 Analysis Table for Feed Ingredients**—by Charles H. Hubbell 20c
35. **Science and Service**—a 16-page summary of AFMA Golden Year articles covering all phases of feed industry. Quantity discounts. Imprinting distributor's name for nominal additional charge.... 50c
38. **Balancing Swine Rations**—Dr. D. E. Becker, University of Illinois.. 20c
41. **Computer Formulation of Feeds**—Dr. W. H. Hastings, Kansas State University 20c
42. **Nutritional Physiology of the Rumen: A New Approach to Rumen Nutrition**—Dr. J. C. Shaw, Formerly at University of Maryland.. 20c
43. **Problems in Bulk Handling and Suggested Solutions**—J. D. Johnson, General Mills, Inc. 20c
47. **Extending Pellet Mill Die Life**—by R. L. Patterson, Procter & Gamble Co. 35c
48. **Organic Arsenic Compounds as Feed Additives**—by Dr. M. L. Scott, Cornell University 20c
51. **Broiler Industry Management**—Prof. Ewell P. Roy, Louisiana State University 20c
52. **Analysis and Feeding Value Tables for Beef Cattle and Sheep**—6-page article, by Dr. S. H. Morrison, Nutrition Consultant, 25c single copy; 3-5 copies, 15c ea.; 10 or more, 10c each.
53. **Grain Bank Operation**—Dr. W. S. Farris, Purdue University 20c
54. **Cost of Producing Broiler Meat**—Dr. N. V. Helbacka, University of Maryland 20c
55. **Feed Manufacturers—Beware of Treated Grain**—Dr. A. A. Camp, Texas Agricultural Experiment Station 20c
56. **Use of Tables, Graphs and Simple Analog Computers in Formulating Least-Cost Feed Mixes**—Dr. R. F. Hutton, Pennsylvania State University 20c
57. **Protein and Energy for Layers**—Dr. M. L. Sunde, University of Wisconsin 20c
58. **Fifty Years of Scientific Development in Swine Nutrition**—Dr. J. H. Conrad, Purdue University 20c
60. **Forage Testing Gains Momentum**—by Dr. R. S. Adams, Pennsylvania State University 20c
61. **What Protein Level for Chicken Layer Diets**—Dr. J. H. Quisenberry, Texas A&M College 20c
62. **Some Ideas on Feeding Pelleted Rations to Ruminants**—Dr. J. H. Meyer, University of California 20c
63. **Maryland Broiler Trial**—Dr. Gerald F. Combs, University of Maryland 20c
64. **Farmer-Businessman Communication**—Dr. Everett M. Rogers, Ohio State University 20c
65. **Suggestions on Nutrient Requirements of the Pig**—Dr. T. H. Cunha, University of Florida 20c
66. **Pelleted Grain for Dairy Cows**—Dr. T. H. Blosser, Washington State University 20c
67. **A Report on Annual Meeting of Poultry Section**—Dr. J. R. Couch, Texas A&M 20c
68. **Proceedings of 1959 Animal Nutrition Research Council** 25c
69. **Pelleted Rations for Beef Cattle**—Dr. Wise Burroughs, Iowa State University 20c
70. **Tomorrow's Formulas for Swine Feeding**—Dr. Damon Catron, Iowa State University 20c

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TURKEY CLINIC—Some of the people taking part in the program of the annual Yieldmor Turkey Management and Disease Control Clinic held recently in Piqua, Ohio, include, front row, left to right: Dr. C. A. Bottorff, American Cyanamid Co., Princeton, N.J.; Dr. C. Gale, Ohio Experiment Station, Wooster, Ohio; Dr. Harry E. Goldstein, veterinarian in charge, Diagnostic Laboratory, Reynoldsburg, Ohio, and Dr. J. F. Long, Diagnostic Laboratory, Reynoldsburg. Standing, left to right: Dr. Glyde A. Marsh, Ohio State University, Columbus, Ohio, and Dr. J. R. Couch, Texas A&M, College Station, Texas.

Ohio Turkey Clinic Speaker Suggests Separating Sexes

PIQUA, OHIO—Research indicates that turkey growers may get better results if the hens and toms are separated during the growing and finishing period, reported Dr. J. R. Couch, poultry nutrition scientist at Texas A&M College, College Station.

Dr. Couch spoke at the annual Turkey Management and Disease Control Clinic held in Piqua recently. Clinic was sponsored by Yieldmor Feeds, Inc., under the supervision of George C. Gibson, general manager.

Separating the sexes becomes especially valuable after the 16th week, according to Dr. Couch, but the job can be done when the birds reach eight weeks.

The turkey toms are still growing during the period from 17 through 20 weeks of age, and require a higher level of protein than do the females.

During this period, the females are ready to be finished and should be placed on a finishing-type formula.

Dr. Couch suggested the following program for birds that are fed separately:

Males: Use a 24% protein pregrower from the 9th through the 12th week; a 22% grower from the 13th through the 16th week; a 20% grower from the 17th through the 20th week, and a 15% level of protein from the 21st week to market.

Females: Use a 22% protein grower from the 9th to 12th week; a 20% grower from the 13th through the 16th week, and a 15% protein level from the 17th week to market.

Dr. Couch added that the same levels of vitamins, minerals, antibiotics and other feed additives are used in the formulation of feeds for both males and females.

There is a need for a finisher-type concentrate in the feed line, according to Dr. Couch. It is impossible to use a concentrate during the growing stages that provides enough calcium and phosphorus for finishing.

It is recommended that birds receive a formula which will provide approximately 1% phosphorus and 2% calcium during the finishing period. These mineral levels help prevent leg weakness.

Dr. Couch said that in surveying field practices from 1957 to 1959, it was found that turkey mixed concentrates ranging in protein content from 36 to 40% were used at levels from 100 to 500 pounds per ton and blended with corn to make a finisher feed.

The levels of minerals, particularly calcium and phosphorus, which the turkeys were receiving from such formulations during the finishing period were exceptionally low.

It is true that the turkey requirement for calcium and phosphorus decreases with age, but in no instance should the level be decreased to a point below 1% phosphorus or 2% calcium.

"The feed processor must use the very latest information in formulating the mixture of ingredients and micronutrients which make up the turkey prestarter, starter, various grower-finishers and concentrates," said Dr. Couch. "The sources and availability of ingredients must be constantly checked and substitution of ingredients must always be made when economics so dictate.

"There have been rather complete studies made of animal protein sources in which it was shown that such products may contain Salmonella-type organisms, traceable to unsanitary conditions which existed in the plant of the manufacturer. Some of these organisms could affect turkey flocks, so the feed manufacturer has the responsibility of investigating the animal source of supply."

Dr. M. G. McCartney, winner of the 1960 Turkey Research award, discussed turkey breeding of the future at the meeting, and explained how the birds may be raised in the Midwest to compete with national markets.

Howard E. Wildey, secretary of the Ohio Turkey Assn., discussed future hopes of the industry in that state.

"Ohio is both close to the eastern markets and in the corn growing area, so it should put the state in a very favorable position for national markets," he said.

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Grain Exchange Lists Shipping Resolutions

STOCKTON, CAL.—At a meeting held at the Commercial Exchange Club last week, many rail proposals were studied and discussed by the Transportation Committee of the Stockton Grain Exchange.

The following resolutions were passed and will be submitted to the board of directors for final approval. Any members' comments, either pro or con, should be submitted promptly in order to receive consideration before a final policy is established:

1. The committee voted to support P.S.F.B. 3657 which is a shipper proposal to establish Turlock, Cal., as a transit station.

2. The committee voted to support P.S.F.B. 3691 and supplement 1, which is a shipper proposal to lower grain rates from Sacramento to Petaluma and Santa Rosa. The supplement requests the same reduction for Stockton.

3. The committee voted to oppose P.S.F.B. 3756 as presented. This is a carrier proposal to establish another route for whole grain from Groups 18 (Kephart-Perez), 19 (Stronghold), 106 (Klamath Falls) to Sacramento, Stockton, San Francisco, Vallejo, Richmond, Oakland and San Jose at a rate of 35¢. The committee would agree to this proposal should the rate be reduced to 33¢, which is the rate to Portland. The justification is based on rate equalization.

4. The committee voted to support T.C.F.B. 8880. This is a proposal to lower present export rates on wheat from eastern points from 98½¢ to 70¢.

Century Chemical Corp. Announces Financing

NEW YORK—Theodore S. Hodgins, president of Century Chemical Corp., announced that Stone and Webster Securities Corp., New York City, has placed with private interests for Century Chemical, $1.5 million in 6% secured debentures. In addition, Century issued $350,000 in 6% subordinated debentures, Mr. Hodgins stated.

Century Chemical was organized in September, 1958. Since that time, the company has made several acquisitions. Century manufactures fine chemicals and intermediates, asphalt products, food additives, pigments and dyes, in addition to selling antibiotics, biologicals and veterinary supplies.

Its subsidiaries and divisions include Wilson Organic Chemicals, Inc., Sayreville, N.J.; Chemo Puro Manufacturing Corporation, Oil & Chemical Terminal, Inc., and the Asphalt Division of Century Chemical Corp., all of Newark, N.J., and Chemo Puro A.G., a European sales organization with headquarters in Zurich, Switzerland. Century will enter into a formal agreement to acquire 100% of the capital stock of the W. A. Butler Co., Inc., of Harrisonburg, Va. Each subsidiary implements one or more phases of Century's operations.

Associated with Quaker

NOKOMIS, ILL.—C. W. Barnstable, owner of the Barnstable Feed Mill and Elevator in Nokomis, recently announced a new association with The Quaker Oats Co.

The Barnstable operation, which will manufacture Ful-O-Pep Mix Feeds, includes modern pelleting equipment with bulk handling and storage facilities.

Egg Marketing Co-ops

HENDERSONVILLE, N.C. — A day-long meeting held here recently to acquaint egg producers and county agents with the operations of egg marketing cooperatives attracted people from 35 western area counties.

The program included a morning tour of the Western Carolina Egg Marketing Cooperative facilities and talks on the history of the cooperative and its present operations.

MILL CHANGES HANDS

GRANTON, WIS.—Purchase of the W. J. Spry & Sons feed mill here by the Neillsville Farmers Union Cooperative was announced recently by Lloyd L. Spry.

SHAPING UP FAST!

A Flock Performance Index to help your egg producer customers increase profits

A Feed Promotion Idea you can use to increase tonnage, get new customers, build sales programs around.

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JOE BROOKS

BY AL P. NELSON

Merchants Can Do Things Cooperatively

It was about 10 o'clock one rainy morning when Joe Brooks walked into the office of the Crawford Locker Plant in Hansen's Creek, a large envelope under his arm.

"Is Del in?" he asked Curly Edwards, the bookkeeper.

Curly grinned. "I'll see. We took him outa cold storage a couple of hours ago. I imagine he's thawed out by this time."

Joe chuckled as Curly disappeared into the back of the plant. In a small town like Hansen's Creek, one knew just about everyone. And everyone also knew a lot about everyone else. This made it possible to joke with the other fellow a little with no harm done. You get to know human nature in a small town.

About five minutes later, Curly Edwards appeared from the back of the locker plant, and behind him came Del Crawford, a heavy set, white-frocked chap, with a couple of gold teeth in front.

"Hi, Joe," he greeted. "Come into my office and have some java with me."

"Okay, Del." Joe walked into the big, roomy, glass-enclosed office of the locker plant owner. Huge colored pictures of animal carcasses hung on the walls. In the distance, one could hear the high scream of high speed saws cutting through steers, hogs and sheep.

Del poured some coffee for Joe into a large white cup, then filled his own cup and set the coffee pot back on a warmer.

"Well, Joe," said the locker plant owner, sinking into a swivel chair and shoving his cap far back on his forehead, "are you putting as much or more money into the bank this year than you were last year?"

Joe grunted. "Are you kiddin'? With costs going up the way they are?"

Del Crawford grimaced. "Isn't it the truth, Joe? Let's go get a factory job—40 hours a week and two days off week ends."

"I often feel like it," Joe said. "But I'm so used to working 75 hours a week in the feed business, I'd get lonesome working 40 in a factory job."

"Me, too, Joe. We're sunk in our businesses, I guess."

Joe Explains Idea

Joe cleared his throat. "Del, could you use some more business?"

Del looked surprised. "Could I use more business? You bet I could. The more business I get the harder I'll push my men and myself to handle it. Where's all this new business? Around this county some place?"

Joe nodded. "That all depends," he said.

"Tell me about it." There was a gleam in Del Crawford's brown eyes, the glint that is always in the orbs of a progressive business man—the profit gleam.

Joe pulled forth a large folded sheet of paper from his inner coat pocket and spread it out. It resembled a four-page section of a newspaper, only the paper was blank—except for the front page which contained a full page ad for Joe Brooks Feed Mill.

"I got to drawing up a full page ad telling customers all about our feeds and services," Joe said, "when I got what I think is a better idea."

"Yeah," said Del.

Joe nodded. "I figured, why don't four of us merchants subscribe to a four-page handbill like this? Each of us could take a full page, and then we'd have a special four-page section. We could blanket the county."

Del pursed his lips but said nothing. However, he was thinking hard.

"Farmers would save a handbill like this, because it would contain pictures of our plants and stores, information and prices about our services. It would be an informational thing and would help us reach old and new customers on a blanket basis in the rural areas."

"Which other merchants would you approach?" Del asked.

Joe smiled. "Well, non-competitive ones. Maybe the lumber company and the dry goods store. They have lots of rural business, too."

"Not a bad idea," Del agreed. "I'd like to have a full page deal like that—something farmers could save."

Run Small Coupon

"I thought each of us would run a little coupon in our ads," Joe said, "and offer to give away a small prize—a pencil, or hot pad or screwdriver or something like that, to everyone who clipped the coupon and called for the gift."

Del's eyes lighted. "Yeah, that would bring 'em in to our stores and

(Turn to JOE BROOKS, page 71)

Tuxedo is growing by leaps and bounds!

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SOME CLAIMS ABOUT PHOSPHORUS ARE TOO MUCH TO SWALLOW!

Take the subject of availability. There have been many claims that some commercial phosphate supplements are 100% available. This may be pseudo-scientific nonsense.

What do we, the suppliers of Cura-phos®, believe? What can *you* believe? Just this: Cura-phos rock phosphate, commercial dicalcium phosphate and defluorinated rock phosphate are equally good. They deliver just about the same feed efficiency. *All are equally available!* This is fact based on testwork just completed by the independent Food and Drug Research Laboratories. The results are below.

Comparison of Commercial Phosphorus Sources on a Practical Type Ration
Summarized from December 15, 1959 Report of Food and Drug Research Laboratories, Inc.

Lot	Phosphorus Source	Level Added Phosphorus	Average Gain in Weight 3 weeks	Average gms Feed per gm Gain	Bone Ash per cent*
			gms.		
A	A leading brand of Dicalcium Phosphate	0.25	264	1.69	43.73
		0.35	290	1.60	45.61
B	A leading brand of Defluorinated Rock Phosphate	0.25	289	1.66	43.56
		0.35	294	1.61	45.23
C	Cura-phos No. 1 — Composite Sample of 4 cargoes drawn in 1957	0.25	295	1.62	44.37
		0.35	299	1.62	45.61
D	Cura-phos No. 2 — Composite Sample of 4 cargoes drawn in 1959	0.25	290	1.63	43.81
		0.35	291	1.67	45.76
Negative Control		0	187	1.87	26.25

*Average of 4 replicates of 10 chicks each. Duplicate lots of 20 chicks on each assay level. Details of report available on request.

Now then, how do you pick the "best" source of phosphorus if they're equally good? On a cost basis. That's where Cura-phos leaves the others behind. Cura-phos does everything you want a quality phosphorus supplement to do. It does everything all the others do. *And it saves you money at the same time!* It makes good business sense to use it. Many feed manufacturers have for years, do right now, wouldn't use any other. How about you? Let us send you all the facts and the arithmetic that spells out the dollars-and-cents savings that can be yours when you switch to Cura-phos. Write on your letterhead today. Without obligation.

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PURDUE EGG DAY—Some of the participants in the eighth annual Purdue Egg Day held recently include (left to right): Dr. J. Holmes Martin, poultry science department, Purdue University; Dr. James R. Carson, regional coordination, North Central Regional Poultry Breeding Laboratory, USDA, Lafayette, Ind.; Dr. Donald Polin, research associate, Merck Institute, Rahway, N.J.; Louis J. Lineback, Lakeville; Edwin W. Miller, Shipshewana; Gordon M. Liechty, Berne; Clarence Yoder, Goshen; Carroll M. Eiler, Warsaw; Joe W. Sicer, extension poultryman, Purdue University. Men in the right photo composed a panel discussing "The Pros & Cons of Started Pullets."

Indiana's Poultry Industry Brought Up-to-Date at Purdue's Egg Day

DAVID D. JACKSON
Indiana Extension Poultryman

LAFAYETTE, IND. — "My definition of a high quality egg is one that no consumer will complain about," said Dr. W. J. Stadelman, Purdue University poultry science department. Dr. Stadelman was addressing the more than 300 Indiana poultry producers and allied industry people attending the 8th annual Purdue Egg Day held recently.

"This requires a sound, clean shell, a clear albumen with some evidence of structure, a normal colored yolk free of blemishes, a relatively small pair of chalazas, and no blood or meat spots," he added.

Dr. Stadelman listed production as one of the important steps in maintaining high quality eggs. This includes:

Selection of a strain adequate for the job, a well-organized rearing program with emphasis on getting healthy pullets, a well-ventilated laying area, a complete ration, a laying period that isn't extended too long, good egg holding facilities, and frequent marketing.

Regarding marketing, Dr. Stadelman emphasized the need for keeping eggs cool at all times.

Evaluating RST

Dr. James R. Carson, regional coordinator of the USDA's North Central Poultry Breeding Laboratory, in Lafayette, discussed "How to Evaluate Random Sample Results."

Dr. Carson pointed out that the best comparisons of strains can be obtained from Random Sample Tests. However, monthly reports are of little value to the grower in comparing strains. The final summary of a test is better, but even more satisfactory results are obtained when one studies several random sample tests and makes comparisons within them.

Dr. Carson suggested using the income over feed and chick costs to choose 5 or 6 strains which produce the greatest profit. Study the details of the individual traits closely prior to making a decision.

"The Pros and Cons of Started Pullets" was the title of a panel discussion moderated by J. W. Sicer, Purdue extension poultryman. Members of the panel were Clarence Yoder, Goshen; Louis J. Lineback, Lakeville; Carroll M. Eiler, Warsaw; Edwin W. Miller, Shipshewana, and Gordon M. Liechty, Berne.

During the discussion, the panel agreed that it would be most advantageous to buy pullets when the poultryman is pressed for time or good growing facilities.

With this situation, the pullet buyer gets more layers per dollar invested and can spend more time caring for them. However, some of the panel members said that by raising their own pullets, they had better control of the product and could do the job cheaper.

The panel also recognized the importance of buying pullets from a dependable, experienced, and local grower and of having a prior understanding regarding vaccination and feeding programs, age on delivery, hauling charges, selection and prices.

Preventing Egg Spoilage

"New Developments in Cleaning Eggs" was discussed by F. E. Wells, Purdue poultry science department. Mr. Wells has been working on problems causing spoilage of eggs.

The importance of keeping eggs dry before and after washing was emphasized. Bacteria must have water to move about on the surface of the egg shell. Then, some bacteria gain entry through the pores and spoilage results. Also, Mr. Wells pointed out that a recommended egg sanitizer-detergent be used when washing.

Dr. Donald Polin, research associate, Merck Institute, Rahway, N.J., covered the "Effects of Feed on Egg Quality." Dr. Polin has studied yolk mottling, formation, and quality and the formation of albumen.

One highlight of the program was an exhibit of new egg products. Among the new products exhibited were frozen (warm and serve) fried, poached and scrambled eggs, frozen French toast, and a complete breakfast (including bacon, eggs and potatoes).

In the cereal area, there were "egg-a-bits" and "Corn Cackles." Also on display were freeze dried instant scrambled eggs, egg spread dips, egg roll, egg ring, egg loaf and egg Cantonese.

Boost Egg Consumption

"Capitalizing on the Population Explosion" was the title of another panel led by Robert L. Hogue, executive secretary, Indiana State Poultry Assn. Indiana poultry people on the panel included Ronald A. Smitherman, Greenfield; Max C. Nellans, Mentone; Harold B. Osterhogg, Muncie, and Edwin H. Starr, Medora.

The group agreed that the decline in egg consumption must be stopped before the population increase will begin to help producers.

Other points made by the panel include: (1) Producers will have narrower margins to work with in the future; (2) egg wholesalers are changing their egg handling methods and making better use of sales helps at the retail level; (3) retailers are beginning to request higher quality eggs and a more uniform product.

Dr. Jack Long, Purdue University, reporting on environmental studies, said that results from a 2-year test show that layers will do equally well at any temperature ranging between 50 and 70 degrees.

Also, the tests indicate that hens housed in aluminum, uninsulated houses in the Indiana climate can still produce well providing warm drinking water is supplied during the cold months.

Beef Gains Go Up With Early Implants

BALMORHEA, TEXAS — Choice Hereford steer calves implanted with 12 milligrams of stilbestrol when about 3 months of age averaged 19 lb. more per steer at weaning time than their non-implanted mates, reports A. A. Melton, animal husbandman at the Trans-Pecos experiment station in Balmorhea.

In addition, the implanted calves had an advantage in condition which was reflected in a slightly higher grade, said Mr. Melton.

To continue the comparison, one group implanted as suckling calves was reimplanted with 24 milligrams of stilbestrol on Nov. 19. This group showed a daily gain of 1.12 lb. from Nov. 19, 1959 to Feb. 24, 1960. Another group, first implanted in November, had a gain of 1.16 lb. daily.

The group implanted only as suckling calves in May had a daily gain of 1 lb. and those not implanted at any time gained 1.03 lb. daily.

Mr. Melton added that, at present, stockmen are cautioned to allow at least 100 days between implantation and the sale of animals for slaughter.

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Broiler Food Editorial Meeting Theme Set

RICHMOND, VA.—News in the broiler industry will be the theme of workshop participation by the National Broiler Council during the Institutional Food Editorial Conference from 10 a.m. to 12:30 p.m. May 7 at the Hotel Ambassador East in Chicago.

Emphasis will be placed on the quality story the industry has to tell, as well as the new products, new ways of marketing broiler-fryers, new terminology and the newest information on the chicken low calorie situation.

Other workshop participants include Heinz, General Mills, Wesson Oil, American Institute of Baking, Frozen Potato Products Institute, Pillsbury, Kellogg and Armour.

The purpose of the conference, which is now in its fourth successful year, is to bring together all editorial people who serve the food service industry for an exchange of news and views. It offers manufacturers an opportunity to update editors on new foods, food ideas, research and marketing techniques.

Attendance numbers about 120-130 from the U.S. and Canada. The 40-50 editorial people represent an aggregate readership of some 615,000 food executives, purchasing agents, managers, dietitians, chefs, stewards, etc.

Alabama Feed Mills Increase Production

JASPER, ALA. — Feed mills in Walker County, Ala., will grind more than 100,000 tons of grain this year for use in broiler feeds in northern Alabama. This points up the growth occurring in the poultry industry in this area.

"Just how many persons are now employed in the poultry industry, no one knows," commented the Birmingham Post-Herald recently, "but it is the No. 1 livelihood."

"One vital link in the poultry industry is absent locally," the Post-Herald article said. "Grain for the feed manufacturers comes from the midwest, is barged down the Tennessee to Decatur or Guntersville, and hauled by truck to the mills."

Feed mills located in Jasper now include Gardner Milling Co., Quality Poultry Co., Quaker Oats Co., Warrior River Feed Mill, and Alabama Poultry Co.

In addition, Ralston Purina Co. has a mixing plant and distributing system at Jasper and a new Pillsbury Co. mill is just starting production.

JOE BROOKS

(Continued from page 68)

plants and build traffic. And it would show us how many people read the handbill. But what about E. Basil Tucker? Wouldn't he get peeved that we don't run this circular in the newspaper?"

"He'll get the printing job, won't he?" Joe countered. "He'll make profit on that. This handbill isn't a regular thing, just an informational deal."

Del Crawford chuckled. "I'll go for it, Joe, if the cost is reasonable. And I'll help you sell the lumber company and the dry goods store. But you're getting the best break on it."

Joe looked puzzled. "How come, Del?"

"Well, I see you've got your feed ad on the front page. You'll get better attention for your ad than I will, for I'll either be on the back page or the inside pages."

Joe flushed a little. "I meant to tell you," he said, "that if we print 15,000 of these, we can switch positions on the front page spot, so each of the four of us gets a front page break. We can work that out."

"That's more like it, Joe. When do you want me to go with you to see the others?"

"Right now, if you have time," Joe said.

Del grinned. "I'll take time. I like to act on good ideas. Finish your coffee and let's amble. Four firms on a deal like this will get better coverage than one will. This'll be interesting."

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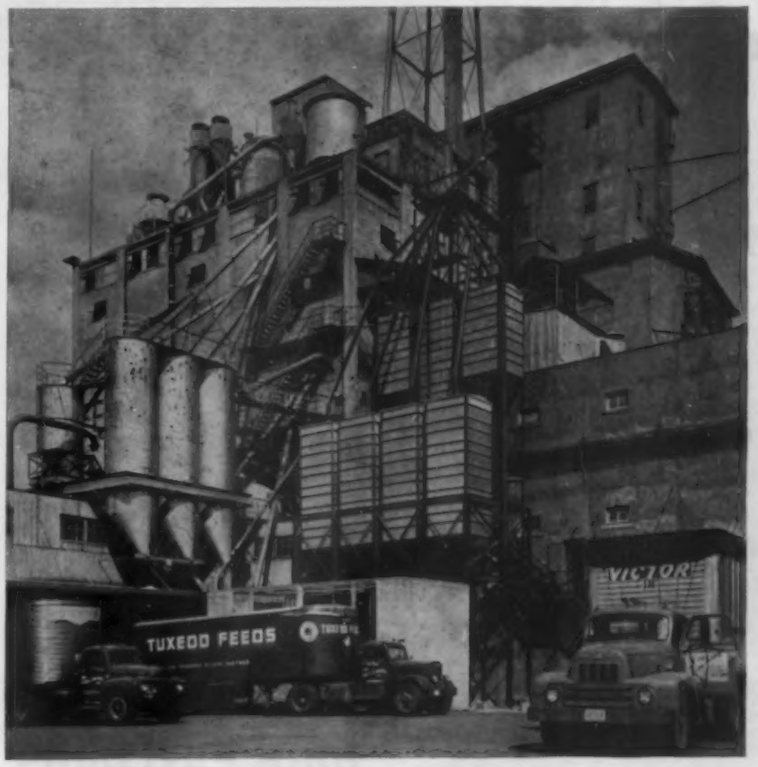

Early & Daniel Company says of their Fitzpatrick Bulk Storage Facilities:

"Workmanship and quality of equipment have been excellent. Maintenance costs have been negligible."

Mr. Parker Hitzfield, Production Mgr., The Early & Daniel Company, with plants at Cincinnati, Ohio, Sumter, S.C., and Tampa, Fla., says this: "U. E. Fitzpatrick & Company have constructed two bulk feed installations for our Company. These installations were different in design and purpose. It has been our experience that the workmanship and quality of equipment have been excellent. Our maintenance costs have been negligible. There just isn't much upkeep to a well designed bulk installation." For bulk storage at the mill, or bulk depots, leading feed manufacturers like Early & Daniel repeatedly turn to Fitzpatrick. Sound engineering for maximum efficiency, highest quality materials and standards of construction, plus complete erection on the job site by trained building crews, insure their investment!

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Alcohol Plant for Sale

OMAHA, NEB.—The Omaha Alcohol Plant, which produced alcohol from grain during World War II, will be offered for sale at public auction on May 25, according to the General Services Administration.

The GSA will not be required to accept the highest bid at the auction, which is to be held at the plant. Earlier efforts to sell the plant by other means weren't successful.

COOPERATIVE FORMED

JASPER, ALA.—A new cooperative, the Farmers Mutual Exchange, has been organized with offices in Jasper. The organization is affiliated with the Cotton Producers Assn., which operates a feed mill, a broiler hatchery, and a poultry processing plant. Sam H. Gordy will serve as manager and secretary-treasurer of the new cooperative. Officers of the board include Robert Rutledge, president, and J. M. Lee, vice president.

Two bookies leaving a church service: "The word is 'Hallelujah,' stupid, not Hialeah!"

◆ ◆ ◆

The teen-ager braked his jalopy to a screeching halt in front of the garage. "Do you charge batteries?" he asked of the owner.

"Sure do, son."

"Swell!" exclaimed the boy. "Put a new one in this car and charge it to my pop."

◆ ◆ ◆

"You don't speak nicely to me the way you used to," she said. "I guess you just don't love me any more."

"Don't l o v e you," he muttered. "There you go again. Don't love you! Why, I love you more than life itself. Now shut up and let me read my book."

◆ ◆ ◆

This might have been any coach. It was the end of the football season and the team had lost again.

"Don't feel too bad, old man," said a comforting old grad to the despondent coach. "Your boys were always good losers."

"Good, heck," growled the coach, "they were perfect."

◆ ◆ ◆

Wife: So your client was acquitted of murder? What grounds?

Lawyer: Insanity. We proved his father had spent five years in an asylum.

Wife: But he didn't, did he?

Lawyer: Yes. He was a doctor there but we had no time to bring that fact out.

◆ ◆ ◆

A modern young wife preparing to take a role in an amateur theatrical was heard to say, "What do you think people would say if I wore tights?" Her husband replied: "That I married you for your money."

◆ ◆ ◆

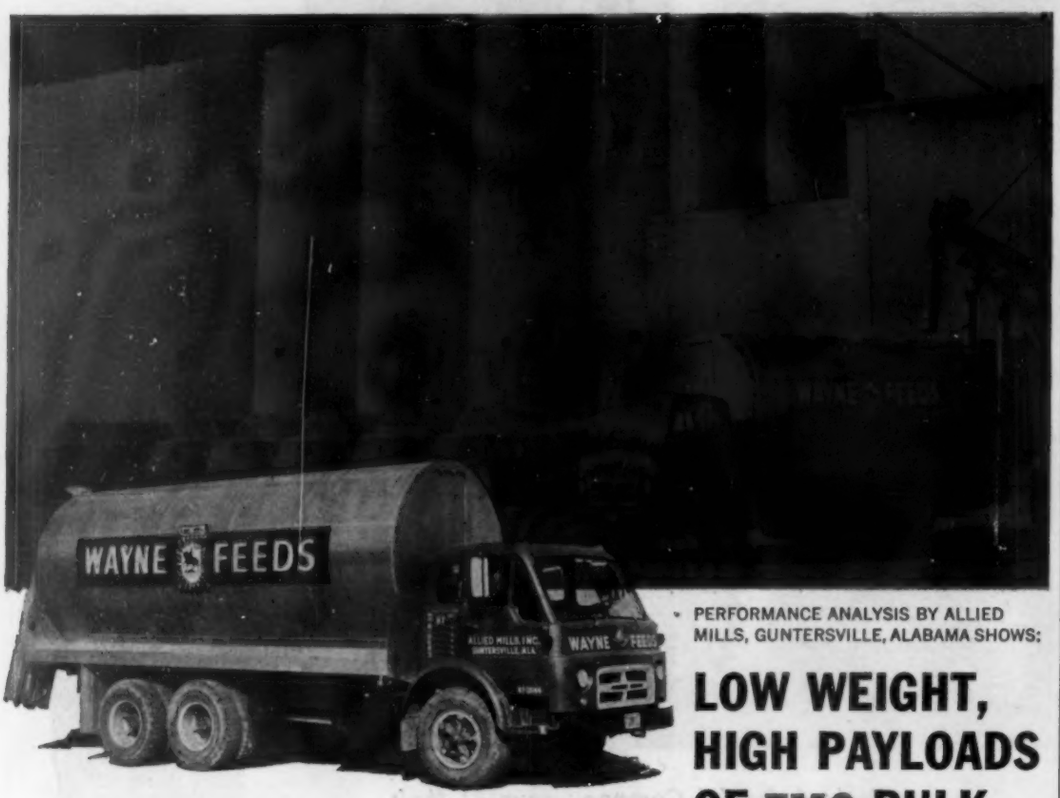
The operator was about to close the door of a jammed elevator when a tipsy gentleman pushed his way in. The door closed in back of him, but he didn't have room to turn around and had to stand facing the other passengers. They stared at him with frowns, obviously displeased at alcoholic odors. Finally, as the elevator rose and the silence was becoming painful, the tipsy o n e cleared his throat and said: "I suppose you are wondering why I called this meeting."

◆ ◆ ◆

Little Boy—"Everybody but me. I our house quick!"

Doctor — "Who is sick at your house?"

Little Boy—"Everyboy but me. I was naughty, so they wouldn't give me any of the nice mushrooms daddy picked in the woods."



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Long capital life, fast unload speed, and all-around mechanical dependability also influential in Guntersville's purchase of eight FMC Bulk Units

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No. 7924—Structural Steel Material

"Keyframe," a new structural steel material that combines the strength of steel and the workability of wood, has been announced by Keystone Steel & Wire Co. According to company literature, the product is a punched angle steel that can be cut to length in three seconds, bolted together quickly and erected as one of

"a hundred different pieces of useful farm equipment." It is made of cold rolled galvanized steel and comes in heavy or regular gauges. The angle has a pattern of precision holes and slots to make it adaptable to any structural need, the company says. A Keyframe cutter is available for ease in cutting. For details, check No. 7924 on the coupon and mail.

No. 7914—Urea Feed Brochure

A brochure available from the Grand River Chemical Division of Deere & Co. tells how to use urea in beef and dairy feeds. It discusses substitution rates, gives examples of typical formulas and includes helpful tips and general information. For copies, check No. 7914 on the coupon and mail.

No. 7921—Crust Breaking Machine

A machine designed to break up bin top crusting was introduced by Seedburo Equipment Co. The "Crust-Buster" rakes a 42 in. swath 10 in. deep across the surface of stored grain, the company says, and this prevents damage by dispersing crusts, surface bugs, larvae and meal moth

webbing. It also aids aeration of hot spots and cuts down on aeration fan operation, company literature says. It is completely portable and consists of a power handle with ½ h.p. three-phase, 220 volt gearmotor drive, and two 14-gauge drums, each 18 in. long, 8 in. in diameter with 7 in. drum prongs. Weight is 110 lb. For details, check No. 7921 on the coupon and mail.

No. 7913—Service Bulletins, Charts

Twelve wall tacker service bulletins, covering swine, poultry and general farm livestock-poultry disease problems, are being released by Merck & Co., Inc. Each wall tacker, 19 in. by 35 in., is printed in two colors, and is punched for hanging to offer ready reference. Some of the subjects include: "Replacement and Laying Flock Production Chart," "Broiler Production Chart," "Common Respiratory Disease of Poultry," "Blackhead Disease in Turkeys and Chickens," "Coccidial Life Cycle" and "Recommended Vaccination Procedures." For more information about imprinting and ordering copies, check No. 7913 on the coupon and mail.

No. 7915—Feed Sack Sewing

The National Cotton Council is offering booklets giving ideas for sewing with cotton feed and flour sacks. The 12-page pamphlets, illustrated with color sketches, contain suggestions for sewing sports clothes, children's apparel, summer dresses, and maternity fashions from cotton sacks and McCall's patterns. Instructions for preparing sacks for use as sewing fabric, and information on yardages in various-sized bags are also included. For copies, check No. 7915 on the coupon and mail.

No. 7919—Metal Pail For Drench

William Cooper & Nephews, Inc., has announced that its Coopa-Fine phenothiazine drench is being marketed in a new metal pail. A new formula permits Cooper to pack in metal pails and guarantee that the pails will not rust out, the company

says. Advantages listed by the company include: No breakage problem, and easy disposal of pails when empty. According to the company, a big problem has been breakage of the glass jars that previously held the drenches. For more information, check No. 7919 on the coupon and mail.

No. 7923—Vertical Mixer

The development of a 200 cu. ft. vertical mixer, designed specifically to receive and discharge materials by air, has been announced by Sprout, Waldron & Co., Inc. Although similar in outward appearance to the standard company vertical mixer, the new unit eliminates the customary horizontal feed-in screw and vertical elevating tube in the base of the mixer. A feature is the dust-tight paddle

discharge gate located at the lower end of the mixer cone, which the company says gives superior discharging qualities. Conveying air enters at the top and is released through a vent which may be connected to a bag or complete dust control system. Thorough mixing is accomplished by the company's standard elevating tube and baffle. The mixer is mounted on steel framework to accommodate connections to the pneumatic materials handling system. For details, check No. 7923 on the coupon and mail.

No. 7920—Booklet on Dehydrated Alfalfa

A booklet entitled "Build Your Profits from Beef Cattle — With Power-Packed Dehy," has been released by the American Dehydrators Assn. Written by Dr. T. W. Perry, professor of animal science, Purdue University, the booklet presents a simplified but point-by-point discussion of the specific values of dehydrated alfalfa in the formulation of balanced cattle rations. The theme of added profits is carried out throughout the booklet, which touches briefly on the value of dehydrated alfalfa for growing and finishing cattle, for pregnant and lactating cows, and for reduction of mortality and improvement of vigor in calves. Sample formulas are given. For copies, check No. 7920 on the coupon and mail.

No. 7918—Equipment Catalog

A Spring catalog has been issued by Brower Manufacturing Co. and contains descriptions of the company's livestock and poultry equipment plus a representative selection of standard items. New equipment covered includes the Brower Kero-Gas 77 Brooder and the Radiant Gas Brooder. Waterers, troughs, fountains, feeders, nests, egg washers and other poultry equipment are described. Livestock equipment covered includes farrowing crates and hog feeders. For copies, check No. 7918 on the coupon and mail.

No. 7916—Coccidiosis Booklet

Dr. Salsbury's Laboratories announces a booklet on coccidiosis

Send me information on the items marked:

- ☐ No. 7913—Service Bulletins, Charts
- ☐ No. 7914—Urea Feed Brochure
- ☐ No. 7915—Feed Sack Sewing
- ☐ No. 7916—Coccidiosis Booklet
- ☐ No. 7918—Equipment Catalog
- ☐ No. 7919—Metal Pail for Drench
- ☐ No. 7920—Booklet on Dehydrated Alfalfa
- ☐ No. 7921—Crust Breaking Machine
- ☐ No. 7922—Liquid Lubricating Jelly
- ☐ No. 7923—Vertical Mixer
- ☐ No. 7924—Structural Steel Material

Others (list numbers) .....

NAME .....

COMPANY .....

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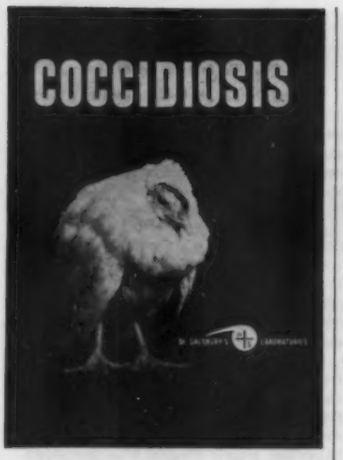

which brings together actual natural color views of the common kinds of coccidiosis in chickens. On double gate-fold pages, color photos are superimposed upon a drawing of the digestive tract to show approximately where each species of coccidia causes lesions. The pages are entitled "An Atlas of Coccidiosis." Text of the 16-page booklet is brief and easy to read, the company says. It points out the importance of coccidiosis, tells how it spreads through a flock and how the common species affect chickens. For copies, check No. 7916 on the coupon and mail.

No. 7922—Liquid Lubricating Jelly

A scientifically controlled blend of non-irritating, non-greasy and odorless ingredients, called "Mastrol," has been announced by Professional Veterinary Drug Co. A milking machine cup and liquid lubricating jelly, the product has been designed for use in the management of mastitis control and prevention. It is primarily for milking machine cup lubrication, obstetrical and surgical lubricant, udder and teat emollient and for use in artificial insemination, lubricating boluses, thermometers, catheters, stomach tubes and similar type nozzles. It will not tarnish instruments and is harmless to rubber gloves. It is chemically bacteriostatic on skin surface, stimulates granulosis and healing, and after application, leaves an invisible protective coating that tends to prevent re-infection. For more information, check No. 7922 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7870—Drying fan, heater, Chicago Blower Corp.

No. 7871—Milk replacer base, Borden Special Products Co.

No. 7872—Pneumatic rappers, National Air Vibrator Co.

No. 7873—Egg cooling units, Master-Bilt Refrigeration Manufacturing Co.

No. 7874—Chick premix, American Cyanamid Co.

No. 7875—Tailored plastic resin, Phillips Chemical Co.

No. 7876—Yeast fraction, Amber

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Handles Grain, Flour, Chemicals, Coffee, Search, Aggregates and many other free-flowing materials. Simple, dust-tight, self-cleaning, compact, fast, economical, long lasting, easy to maintain.

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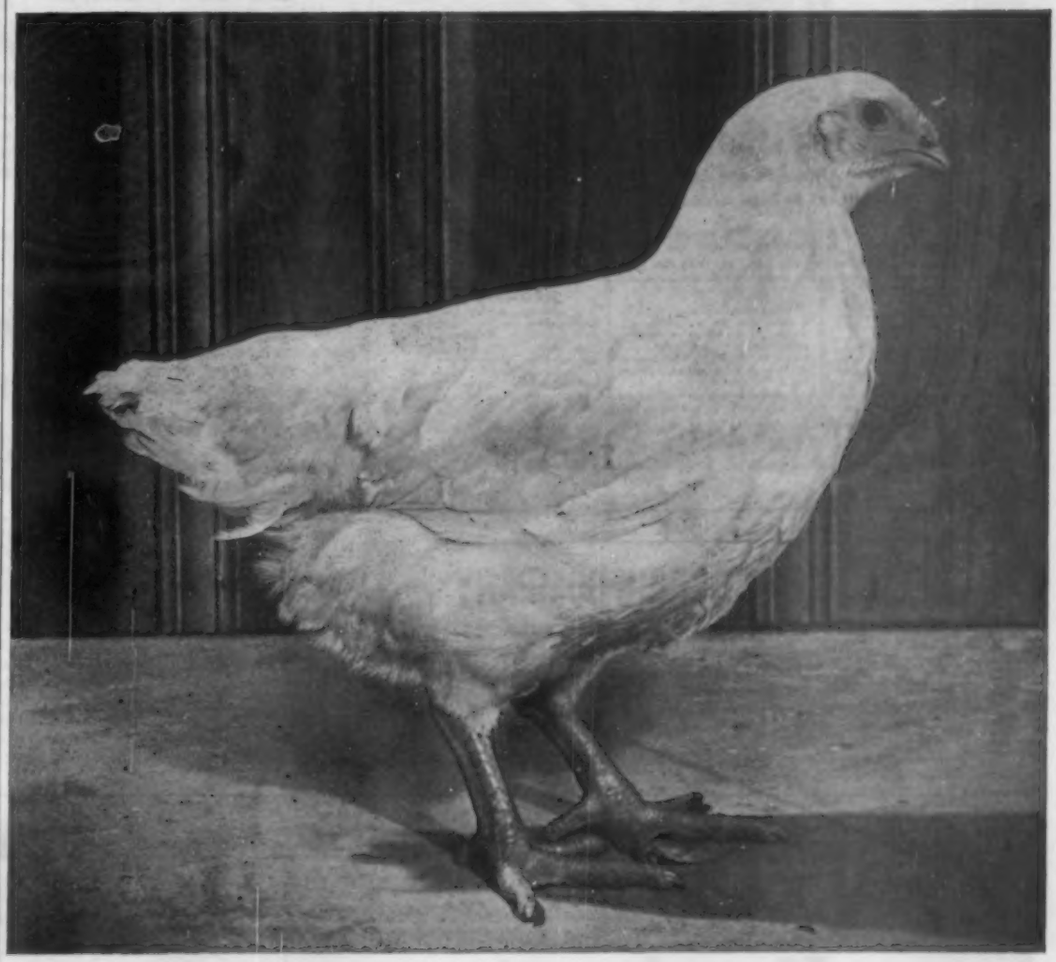

Peebles' M-N-C supercharges feeds with the WHEY FACTOR BONUS

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Don't Mix Without

(85% Feeding Cane Molasses Equivalent)

Here's THE economical, dry blackstrap molasses product dehydrated on soybean mill feed.

It means added palatability for your feeds and an easier mixing job for you. CK Econolass is never sticky — won't harden and ball-up.

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ECONOFERM
A multiple cultured product absorbed on soymeal. This economical new product offers a reliable source of the unidentified growth factors which promote faster gains. Econoferm is also rich in other essential known ingredients including 5 important vitamins.

ECONOSOL
This fish soluable product dried on soymeal provides a uniform and top-quality source of unidentified growth factors for resultful poultry, turkey and pig feeds. There's none of the unpleasant mess of handling liquid fish soluables.

ECONOLOD
Is a new free flowing source of vegetable fat (lecithin, vitamin E and Tocopherol) for all livestock and poultry feeds. It's pleasant odor and its superior flavor improves palatability while adding the health benefits of increased fat.

Remember all the CK line comes in moisture-resistant bags. That means it may be handled and protected for you.

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No. 7877—Poultry health product, Hilltop Laboratories.

No. 7878—Lift truck booklet, Towmotor Corp.

No. 7879—Grain storage building, Stran-Steel Corp.

No. 7880 — Large twin mill, Knoedler Manufacturers.

No. 7881—Pellet cooler, Ross Machine & Mill Supply, Inc.

No. 7882—Iron anemia product, Myzon Laboratories.

No. 7883—Poultry disease pamphlet, Delaware Poultry Laboratories.

No. 7884 — Bulk handling folder, Link-Belt Co.

No. 7885—Auto leasing study, Foundation for Management Research.

No. 7886—Grain dryer, The Mathews Co.

No. 7887 — Feed mixer, Phil-Rite Rollo-Mixers.

No. 7888—Feed body line, New Way Manufacturing Co.

No. 7889—Aluminum feed trucks, Sprout, Waldron & Co.

No. 7890 — Measuring device, Daffin Manufacturing Co.

No. 7891 — Pig injectable iron, Merck & Co., Inc.

No. 7892 — Meat extender, Taste Engineering, Inc.

No. 7893—Hay mill, Wetmore Pulverizer & Machinery Co.

No. 7894—Air driven valve, O. B. Armstrong & Son.

No. 7895 — Egg sanitizer cleaner, Oakes Manufacturing Co.

No. 7896 — Bulk feed units, Curl Engineering & Manufacturing Co.

No. 7897—Laboratory diet, A. E. Staley Manufacturing Co.

No. 7898 — Batching handbook, Howe Scale Co.

No. 7899 — Vitamin E brochure, Hoffmann-LaRoche, Inc.

No. 7900—Feed body catalog, Simonsen Manufacturing Co.

No. 7901—Revised product label, American Scientific Laboratories, Inc.

No. 7902—Grain conveyor, Dunbar-Kapple, Inc.

No. 7903 — Inhalation product, Whitmoyer Laboratories, Inc.

No. 7904—Locking wedge mount, Martin Engineering Co.

No. 7905—Redesigned motors, Lima Electric Motors Co., Inc.

No. 7906—Layer management book, Colonial Poultry Farms, Inc.

No. 7907 — Conveyor book, Link-Belt Co.

No. 7908 — Swine management booklet, Merck & Co., Inc.

No. 7909—Animal health product, Hilltop Laboratories.

CHICKS FOR SUPPLY FLOCKS DOWN

WASHINGTON — Domestic placements of pullet chicks for broiler hatchery supply flocks by leading primary breeders of broiler replacement stock in March were 17% less than in March, 1959, the U.S. Department of Agriculture reports.

Domestic placements totaled 2,674,000 during March, 1960, compared with 3,209,000 placements in March, 1959. Total placements (domestic plus exports) were reported at 2,946,000 as compared to 3,450,000 a year earlier.

The placement data include pullet chicks sold during the month, plus the number of pullet chicks expected from eggs sold during the preceding month. The conversion from eggs to expected pullet chicks was made on the basis of 125 pullet chicks per case of hatching eggs sold.

The primary breeders included in this report account for a large percentage of the total supply of replacement pullets for broiler hatchery supply flocks.

Sales of replacement pullets by these breeders provide an indication of the potential number of pullets available for addition to hatchery egg supply flocks several months before the pullets actually move into the flocks.

No. 7910—Southern farmer promotion, Chas. Pfizer & Co., Inc.

No. 7911—Pallet loading machine, Power-Curve Conveyor Co.

No. 7912—Mastitis x-ray display, Chas. Pfizer & Co., Inc.

Feedlot, Mill Planned

MINATARE, NEB. — Construction of a multi-million dollar cattle feedlot with a capacity of 50,000 cattle and a quarter million dollar feed mill has begun here.

B. M. Stewart, Newcastle, Wyo., president of the System Investment Co., announced completion of plans for the operation, to be called System Feed Lots.

Property purchased includes four buildings of the old Great Western Sugar Co. factory and about a half section of land. The firm plans to have enough of the lot constructed to handle 30,000 cattle by Sept. 1 and has set Jan. 1 as the final completion date. The mill will handle 600 tons of feed a day, it was indicated.

Douglas Has A Spray For Every Insect Control Need

- "88" Improved Farm Bin Spray
- Special Mill Spray
- Hi-Po "22" Spray

Douglas "88" Improved Farm Bin Spray is the spray you need to make sure your bins are safe before you fill them. This residual spray rids empty grain storage bins of insects — gets into the cracks and crevices where they hide and kills them.

After bins are filled, prevent migratory infestation by spraying the surface with Douglas Special Mill Spray. It provides a surface barrier that drives insects off.

Douglas Hi-Po "22" Spray is designed especially for killing exposed moths and exposed stages of other harmful insects.

FOR GRAIN: This contact spray can be applied directly on the surface of grain. It will not contaminate.

FOR PEANUTS: Apply directly on bulk unshelled peanuts or to the exterior surface of stacks of bagged peanuts. It will not contaminate peanuts or stain bags.

Whatever your need for insect sprays Douglas can provide it. Our forty-four years of experience in protecting stored grain is your assurance of satisfaction. Take advantage of Douglas' free Grain Inspection Service.

For the Extra Values in Grain Conditioning
DEPEND ON

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Grain Sanitation Division

Douglas Chemical Company
620 East 16th Avenue, North Kansas City, Missouri

____I want professional assistance with grain sanitation. Without obligating me, have your Specialist contact me.
____I would like to have the inspection made within 30 days ____60 days____ (check one)
____Please send copy of 1960-61 Grainman's Insect Calendar.
I am storing____bu. of____(kind of grain)

Name____
Company____Title____
Address____
City____State____

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TO FEED MORTON T-M SALT!
CATTLE GAIN MORE, AT LESS COST, WHEN FED MORTON T-M SALT!
CATTLE GAIN MORE WHEN FED MORTON T-M SALT FREE CHOICE!
MORTON SALT COMPANY
IT PAYS
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MORTON SALT COMPANY

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The leading companies selling the agricultural field know that nothing influences country trade like a farm magazine—and no farm magazine means so much to so many as FARM JOURNAL.

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MORTON SALT COMPANY

IF YOU USED PETERSON MALES YOU WOULDN'T NEED SO MANY!

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breeding farm
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MILK REPLACER
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A WEEKLY NEWSPAPER
For the Feed Manufacturer, Feed Jobber
Feed Broker and Feed Dealer

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BOWMAN PRODUCTS

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Vita D that will not decompose when combined with minerals.

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13160 Ortley Place VAN NUYS, CALIF.

Florida Poultry Group Continues Planning for Egg Marketing Co-op

TAMPA, FLA.—Some 150 poultrymen attended a first planning meeting of the Hillsborough County Poultry Assn., and officials of the group immediately called for a second session for the study of a proposed egg-marketing cooperative which would serve eight counties.

The poultrymen at the first meeting—many were from western and central Florida—indicated strong interest in the proposed cooperative, and many of them turned in reports showing the egg production on their farms. T. P. Browder, association president, presided at the meeting.

One of the speakers was Dr. Ralph Eastwood, extension marketing economist for the University of Florida.

"There is nothing socialistic about cooperatives," Dr. Eastwood said. "Cooperatives are the most private kind of business. Approved by federal and state laws, and affording definite tax benefits to participants, a cooperative can control the quality of its product."

He went on to say that the cooperative must have a market, adequate volume of the product to be marketed, efficient management and sound financing. "There can be too many little cooperatives," the speaker declared.

Mr. Browder asked if anyone "cared to speak for the feed companies." There was no response, although there were feed dealers in the audience, reports indicated. It was estimated that feed firms market more than 50% of the eggs produced in the Tampa area.

Another association official, John Cripe, said "no reflections were being cast" upon the feed companies, "for they had entered the egg marketing business solely in order to sell their feed."

Meanwhile, Dr. Eastwood went on to say that the cooperative plan called for eggs to be washed and sized at the farm level (each poultryman would be required to have an egg cooler), and that the eggs would be candled, graded and re-sized at the cooperative plant. There would be continuous U.S. Department of Agriculture inspection at the plant.

A. G. (Lou) Mazourek, Masaryktown, for many years a leader in the Hernando Egg Producers Cooperative, participated in the discussion of cooperatives' financing problems.

Robert Mann, a Florida state representative and legal advisor to the Hillsborough association, presented a general outline of farm cooperatives in Florida. John Wallace, prominent St. Petersburg hatcheryman, praised the idea of a cooperative.

Meanwhile, an earlier report indicated that Sam O'Quinn and Don Wegman, secretary and treasurer, respectively, of the association, were somewhat discouraged over lack of interest in the association manifested by poultrymen in the county. They pointed out that in 1957 the association had 110 members, but that membership dropped to 85 in 1958, to 65 in 1959, and to 42 just recently.

One source in Tampa commented: "Also hurting the association financially is the fact that feed companies which made contributions in past years have abondoned the practice."

VIPOL on Vaccines Is Like 'STERLING' on Silver

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For hundreds of years, the world has purchased silver articles with confidence — secure in the knowledge that the hallmark "sterling" was a guarantee of purity and quality of material and workmanship. For nearly a half century, the name "VIPOL" on poultry vaccines has given the poultrymen of the world a similar silent guarantee of the highest quality and purity that science and experienced skills can produce. Just about everywhere you go, the trademark "VIPOL" has become the yardstick of performance . . . the hallmark that proudly proclaims that here is the finest product of its kind. In consistently high quality . . . purity . . . and in flock protection and performance . . . VIPOL has established standards of excellence that have brought a new measure of security to the poultry industry.

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University research laboratories and extensive field tests have documented the fact that only one mild strain of Newcastle Vaccine consistently produces a high level of protection and a durable immunity against Newcastle disease. That strain is the *Vipol 717 Strain*, also known as the LaSota Strain, manufactured exclusively by Vineland Poultry Laboratories. In laying flocks, revaccination of young chicks is reduced to the minimum and is necessary only if the birds are carrying parental immunity at the time the vaccine is first given. Broilers and heavier meat birds are protected right through to marketing time. Whether you use VIPOL 717 in the drinking water, intranasally, intraocularly or intramuscularly, remember that this is the strain that gives full protection in depth, every time.

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The Vineland strain of Infectious Bronchitis Vaccine is so mild that it produces little reaction in the birds to which it is applied. Despite its mildness, challenge tests with a "hot" Bronchitis virus indicate that this mild strain of vaccine produces a very durable and dependable immunity.

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For replacement pullets, this new, mild Fowl Pox Vaccine gives complete protection when vaccinated at 10 days of age and older—yet is so mild that, in emergencies, some poultrymen have successfully vaccinated birds in production with excellent results. Broilers get full protection right from one day of age, with none of the reaction that might curb appetites and slow growth.

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Vineland Poultry Laboratories pioneered this vaccine, and were the first to produce it for commercial use. Vineland Tracheitis Vaccine may be administered to birds of any age without fear of reaction. It can be applied at the same time as other vaccines since there is no systemic reaction. Even in laying flocks, egg production is not affected. Vaccinated broiler flocks continue to eat and gain.

REMEMBER—Vineland Poultry Laboratories has specialized in the production of vaccines, antibiotics, drugs and disinfectants for the poultry industry for 46 years. This specialization is only one of the many reasons why commercial poultrymen all over the world insist upon products bearing the VIPOL trademark. Contact your nearest Vineland distributor for your free copy of our 30-page question and answer book on vaccination procedures. Find out for yourself how the Vineland Vaccination Program can provide "Sterling" protection to your poultry flock by using VIPOL Vaccines.

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WEST COAST BRANCH
4068 Broadway Pl., Los Angeles 37, Calif.

Plan $750,000 Automated Unit

WASHINGTON—An Iowa hog producer and veterinarian are seeking to finance a $750,000 automated hog production operation, a New York Times dispatch reports.

It is expected that Agricultural Research Development, Inc., Wiggins, Colo., formed by veterinarian Dr. C. L. Telleen, Gowrie, Iowa, and producer Herman W. Tripp, Paton, Iowa, soon will refile a new stock prospectus with the Securities and Exchange Commission. It will offer 130,000 shares of common stock to the public at $5 a share.

The two will use the money to finance an operation with an anticipated output of 15,000-18,000 hogs a year with a labor force of five to six men and a maximum of sanitation. They plan a "disease-free" operation, with emphasis on getting a meat-type hog.

The agricultural research company was formed last December, and the pair chose Colorado because they believe they "can buy feed cheaper there and there is an unfilled market there for a meat-type hog."

They plan to raise quality meat-type breeding sows at the start and sell them back into the Midwest corn-hog states at a profit.

They have bought the 520-acre Morgan County farm near Wiggins where they intend to construct their hog plant. Total cost of the plant is estimated at $396,000.

The company has an option to purchase the Iowa farm owned by Mr. Tripp and his father, J. R. Tripp, for $54,850. This will be the "basic farm," where the best sows will be gathered and conditioned for shipment to Colorado and the production of pigs. Dr. Telleen said Mr. Tripp figured the hogs could be produced for 9-9½¢ a pound.

Seminar Planned on Agricultural Marketing

CHICAGO—A one-day seminar on agricultural marketing is being sponsored by the Chicago Area Agricultural Advertising Assn. May 2 at Chicago's Drake Hotel.

Scheduled speakers include J. E. Streetman, vice president of Ralston Purina Co., St. Louis, and Roswell Garst, the Coon Rapids, Iowa, feeder and seed corn producer who was widely publicized as host to Khrushchev during the Russian leader's tour of the U.S.

The seminar will be devoted entirely to the marketing and advertising problems of a changing agricultural economy, said Arthur E. Meyerhoff, Jr., chairman of the association's public relations committee.

Not Cutting Chicks

OSAGE, IOWA—North Iowa egg producers think that the 38% reduction in the number of baby chicks produced by hatcheries forecast for 1960 by the U.S. Department of Agriculture indicates this fall might be a good time to be in the egg business, the Iowa Farm & Home Register reports.

Jerry Mickels, manager, North Iowa Quality Egg Producers, Inc., said, "No one in our association is cutting back, and several flock owners are increasing their orders for baby chicks . . . Our farmers are in business to produce eggs on a continuing basis—not on an in-and-out program."

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Pfizer Sales, Earnings Rise in First Quarter

NEW YORK—First quarter sales and earnings of Chas. Pfizer & Co., Inc., were substantially higher than in the same period last year, John E. McKeen, president, told share owners this week at the annual meeting in Brooklyn.

World-wide sales of the drug and chemical firm were $68,722,000, compared with $60,547,000 in the first three months last year, an increase of 13.5%. Earnings were $7,102,000, up 12% from $6,339,000 and were equivalent to 43¢ per common share against 39¢ in the January-March period in 1959.

Mr. McKeen declared that "the company's operations are now well diversified, not only in terms of products, but also in terms of geographical areas. The over-all outlook is good, and we are cautiously optimistic about the balance of 1960."

About 2,000 share owners and guests attended the meeting at the Brooklyn Academy of Music and heard reports on the company's operations from Mr. McKeen and other Pfizer officials. The program was designed to acquaint them with the firm's global activities.

Among the directors reelected was J. Jerome Thompson, Pfizer vice president and general manager of the agricultural division.

MINNESOTA MILL SOLD

JORDAN, MINN. — Al Beckius, Jordan feed dealer, and Cy Hennes, New Prague feed mill operator, have purchased the Shakopee Feed Mill and Purina dealership. Selling the mill were Warren and Marvin Stemmer, who operated the Shakopee mill since 1946, when they took it over from their father, J. M. Stemmer.

Poultry Festival Set In South Carolina

CLEMSON, S.C.—Final plans have been worked out for the 1960 Poultry Festival to be held at the Batesburg-Leesville school grounds on Wednesday, May 11.

P. H. Gooding, Clemson poultry extension staff, says that the committees working on the festival met recently with Clyde Rauch, general chairman, to work out final details.

The festival will begin with a parade at 10:30 a.m., and will end with the crowning of the festival queen at a dance that night.

Mr. Gooding announced that B. W. Brookshire, Batesburg, is chairman of the beauty contest committee. Local hatcherymen, feed processors, dealers, or poultry processors are being asked to sponsor contestants in the beauty contest.

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FAIRBURY, ILLINOIS

ALFALFA SALES MEETING—Participating in the recent meeting of sales personnel of the National Alfalfa Dehydrating & Milling Co. in Kansas City were (left to right): seated, Stan Cox, assistant vice president; A. R. McFadden, vice president in charge of sales; Alex Donnelly, president, Kansas City, and Don Merrick, district sales manager, Toledo, Ohio; standing, Harold Swift, district production manager, Manzanola, Colo.; Tom Grill, district sales manager, Kansas City; Ray Copeland, district sales manager, Plainview, Texas; John Clay, special products division, Kansas City; Dave Rucker, district sales manager, Memphis, Tenn.; Lowell Price, district sales manager, Blair, Neb.; Leigh Raetz, district production manager, Lexington, Neb., and William Orr, district sales manager, Independence, Kansas.

National Alfalfa Dehy Firm's Salesmen Meet

KANSAS CITY — Sales personnel for National Alfalfa Dehydrating & Milling Co. from all over the U.S. gathered here recently to make plans for the coming year.

A. R. McFadden, vice president in charge of sales, predicted a better formula feed demand for the last half of 1960, compared with the same period in 1959, basing his forecast on a belief that feeding ratios will show steady and sustained improvement.

Another highlight of the meeting was the introduction of a unique quarterly pricing plan for customers who book year-around supplies of dehydrated alfalfa. A new price differential for higher quality material also was announced.

CONFERENCE

(Continued from page 16)

antibiotics added to the diets at various levels during the past few years. Most consistent responses, in areas where cold winters prevailed, were produced during the months of January, February and March. Dr. Naber indicated that a greater response might be expected in cold climates during these months.

Tests were set up first with old hens which had been in production 15 months and with oleandomycin and Terramycin as antibiotics, in studying the effect on egg production. Windows were removed in some instances to subject the layers to additional stress during February. A second test was carried out with young birds wherein the younger laying hens were moved to range after eight months of production and thus subjected to stress. In each instance antibiotics prevented the drop in production which resulted from environmental stress.

The report from the Ohio State University is in line with a number of popular articles written by the writer to the effect that antibiotics overcome the disease level or a stress when added to the diet of laying birds. If such disease level or stress does not exist, no response is forthcoming from the addition of the antibiotics to the laying feed formulas.

The third paper on antibiotics was presented by Dr. J. M. Pensack, American Cyanamid Co., Pearl River, N.Y. The title of the paper was **"Factors Affecting the Gastrointestinal Absorption of the Tetracycline Antibiotics in Poultry."** There were certain points from Dr. Pensack's presentation which are pertinent to the application of the tetracyclines to feed usage for antibiotic potentiation purposes. A reduction of the calcium level from 1% to 0.4% doubled the level of chlortetracycline in the blood. Less response was obtained if calcium sulfate was the calcium supplement used in the formula. It was pointed out that the Aureomycin level in the blood reached a maximum peak in about three hours. The kidney is apparently the organ of chlortetracycline retention.

The absorption of chlortetracycline increased with age up to the time when the chick was 13 days of age, and then decreased. This is associated with the amount of feed consumed per day on the basis of the grams of feed per kg. of body weight. In determining the antibiotic content of the blood from individual birds it was indicated that there is considerable variation with the individual birds. The absorption varied with sex up to four weeks. Hens and female chicks absorb tetracycline more effectively than cockerels.

ENERGY, FAT, PROTEIN AND AMINO ACIDS

Limited Caloric Studies with Broiler Strain Hens—This paper was presented by the writer, Dr. J. R. Couch, Texas A&M College, College Station, and was concerned with the following experiment: Eight hundred day-old Nichols 108 strain pullets were reared to 8 weeks of age on a diet containing 21% protein and from the 9th through the 25th week were fed a 13% protein pullet developer containing 430 Calories productive energy per pound on a full fed basis. The laying hen experiment was initiated Jan. 1, 1959, and terminated Aug. 12, 1959. There were six treatments in the study with 84 birds per pen. The rations were calculated to contain 17% protein, 2.5% calcium, and .77% phosphorus. Group 1 was fed a diet containing 950 Calories productive energy per pound. The feed of the second group was restricted by 15% mechanically. A third group was fed a formula containing 800 Calories per pound, and the fourth was fed the 800 Calorie diet mechanically restricted to the amount consumed by the birds in group 1, on a bird-day basis. In the case of group 5 the formula contained 700 Calories per pound and in group 6, 600 Calories per pound. Rice hulls were used as the diluent in decreasing the caloric content of the formulas.

There was a significant decrease in the percent production for the birds fed the 600 Calorie formula. Apparently these birds could not consume enough of this formula to maintain body weight and egg production. The mortality in the case of the birds fed the 950 Calorie productive energy per pound formula was 20.24%, while in the case of group 2 where the caloric intake of the birds fed the 950 Calorie formula was reduced by 15% mechanically, the mortality was 24%. This observation is not in agreement with an earlier report from Connecticut. No explanation is offered for this particular observation. Best and most consistent results with regard to egg production were obtained when the 700 Calorie productive energy per pound formula was used, although more feed was required to produce a dozen eggs. Thus the feed conversion obtained in this formula was poorer than in the case of groups 1 and 2. It was interesting to note that the Calories required to produce a dozen eggs in the case of group 2 and in the case of the group fed the 700 Calorie per pound formula were almost identical.

A report was also given on an experiment currently in progress where the pullets were reared similarly to those described above. In this instance the first group was fed a formula identical with that of group 1 in the above experiment. Group 2 was fed a formula containing 800 Calories per pound, Group 3 received 700 Calories per pound of diet, and Group 4 was fed a 600 Calories per pound formula. In the case of groups 5 and 6 dehydrated alfalfa meal and wheat bran, respectively, were used to decrease the Caloric content of the formula. These ingredients were used at levels of 25% in the formulas indicated. It was thought that the use of such ingredients might provide additional information on the possibility of formulating feeds with cheaper feed ingredients to overcome the larger quantity of feed required to produce a dozen eggs when the fiber content of the feed is increased or the Caloric content is decreased. Best results in this study at the end of four 28-day periods were produced when the birds were fed a formula containing 700 Calories per pound with rice hulls as the diluent. Somewhat poorer results were obtained when the sources of fiber were alfalfa or wheat bran. No explanation can be offered for this observation.

In conclusion it might be stated that the work herein presented supports the earlier observations of Dr. Singsen and co-workers from the University of Connecticut to the effect that it is necessary to reduce the Caloric intake of broiler strain birds. Such a reduction in the Caloric intake can be accomplished through mechanical restriction or by adding an inert diluent to the formula. It would appear from these results that the Caloric intake should not be reduced below 700 Calories productive energy per pound. Most favorable results were obtained with rice hulls; however, this is not necessarily construed to mean that rice hulls is the only source of fiber which can be used. Oat hulls, ground corn cobs and others, no doubt, would be equally usable.

Utilization of Fats and Fatty Acids—There were two papers presented from Cornell University under this subhead. The first of these was by Dr. Ruth Renner, and was concerned with **"Factors Affecting the Utilization of Saturated Fatty Acids by the Chicken."** Dr. Renner used tallow, lard, soybean oil, and fatty acids from each of these fat sources in the study. According to Dr. Renner's report, the absorbability of palmitic acid varies directly with the level of unsaturated fatty acids present in the fat mix-

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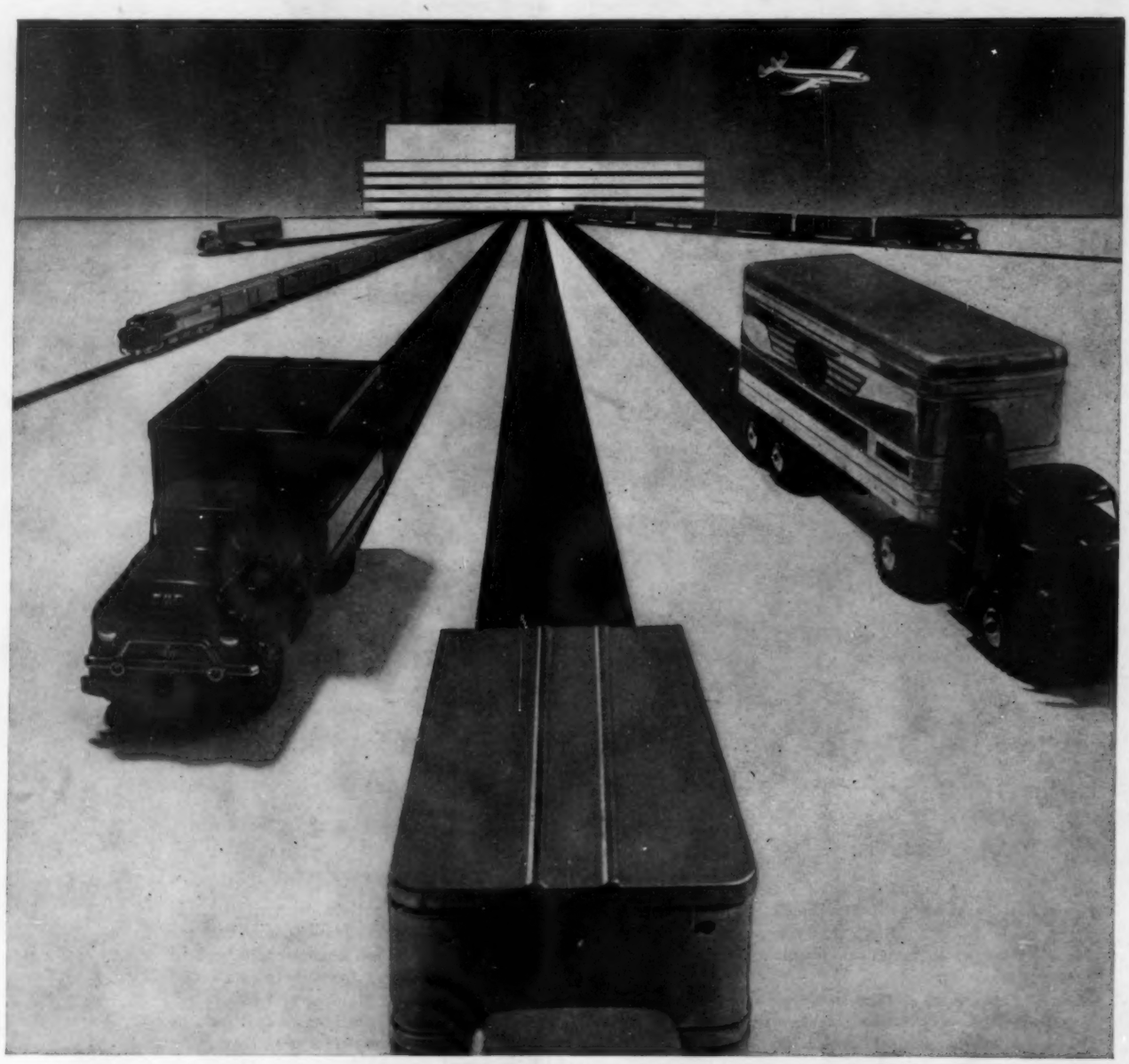
ture. Further, the palmitic acid is better absorbed in glyceride combinations than as the free fatty acid. The absorbability of palmitic and stearic acids depends upon the extent to which these remain attached to the triglyceride molecule during digestion. This may be taken as support for the particulate theory of fat absorption. The absorbability of palmitic and stearic acids is improved by the feeding of mixtures containing unsaturated fatty acids. Further, the absorbability varies with the position of the saturated acids in the triglyceride molecule, the beta position being most favorable. The latter might account for the difference in the absorbability of the fatty acids from lard and tallow or the high nutritive value of lard versus tallow, in that most of the palmitic acid in lard is found in the beta position in the triglyceride molecule.

The next paper in this field was also from Cornell and was presented by Dr. L. B. Carew, Jr. The title was **"Comparative Value of Soybean Oil and Unextracted Soybean Fractions in Chick Rations for Growth Stimulation and Improved Efficiency."** This is a continuation of the report given from the Cornell laboratories concerning the use of whole soybeans in poultry feeds, which was given before the 1959 meeting of the Poultry Science Assn. and reviewed in Feedstuffs Aug. 22, 1959. Studies were carried out wherein various soybean fractions were compared to a combination of soybean oil and extracted soybean meal. Whole soybeans were prepared by an expanding process which consisted of heating the soybeans under high pressure, and then allowing the beans to expand rapidly. This procedure releases the oil effectively but apparently does not produce as high a nutritive value in the whole soybeans as does the flaking process. Flaking soybeans prior to heat treatment markedly improved the absorbability and availability of the oil in the beans. This process produced a product with a nutritive value comparable to that of the oil and meal combinations. The presence or absence of hulls produced no effect on growth or fat absorbability. Likewise, the fineness of grind of ground soybeans produced no effect on growth or absorbability of the oil. Dr. Renner found that a 40 minute extraction in vitro predicted well the absorbability and availability of the fat.

Pink Egg Whites-Cottonseed Oil—Dr. R. J. Evans, Michigan State University, East Lansing, reported on studies concerned with **"Pink Egg Whites in Stored Eggs from Hens Fed Cottonseed Oil."** Dr. Evans fed crude cottonseed oil to laying hens and studied the eggs after they had been in storage for 6 or 9 months. It was concluded that cottonseed oil contains two factors, one of which curdles and discolors egg yolks and the other produces pink whites in the stored eggs.

(Turn to CONFERENCE, page 86)



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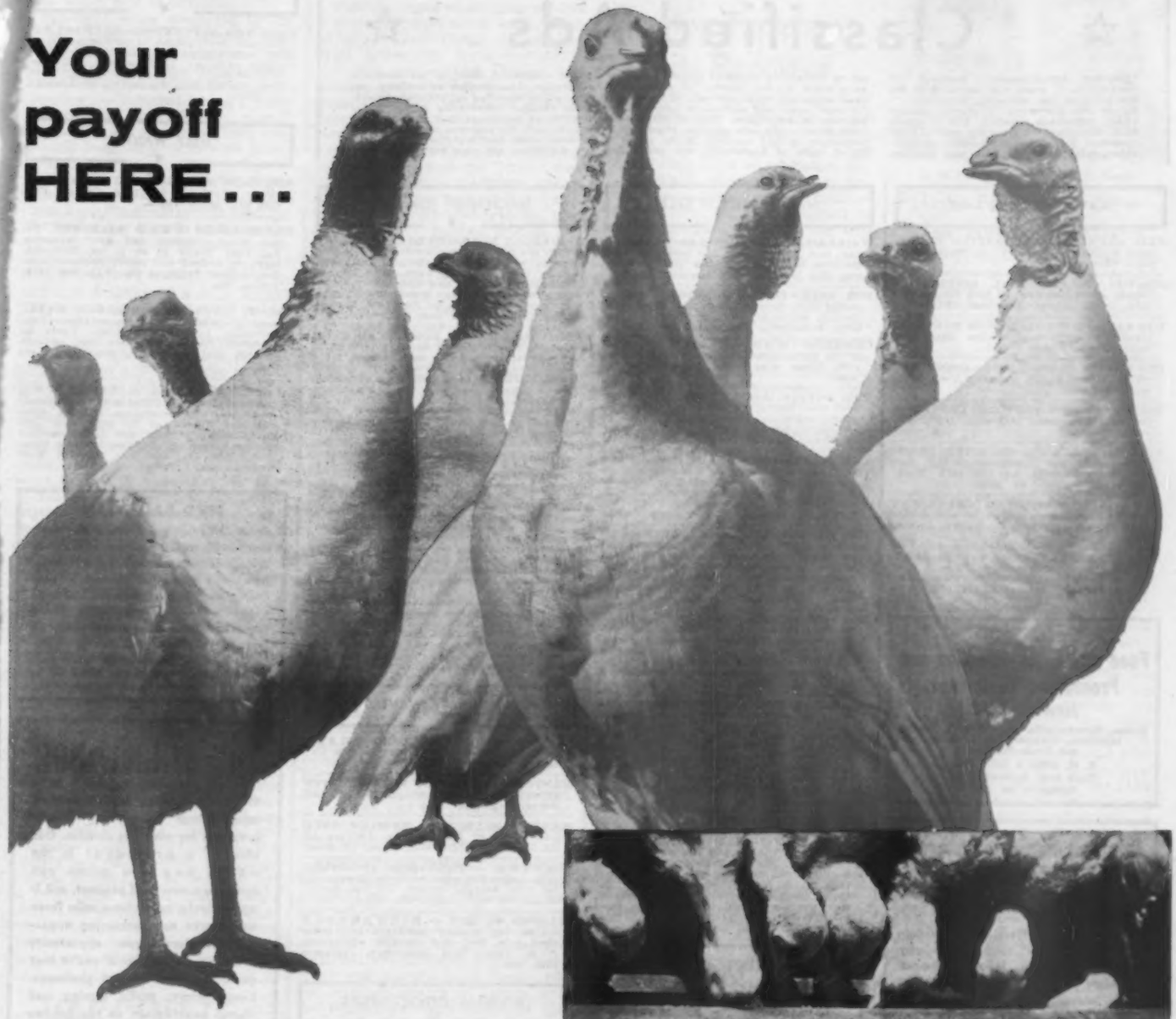

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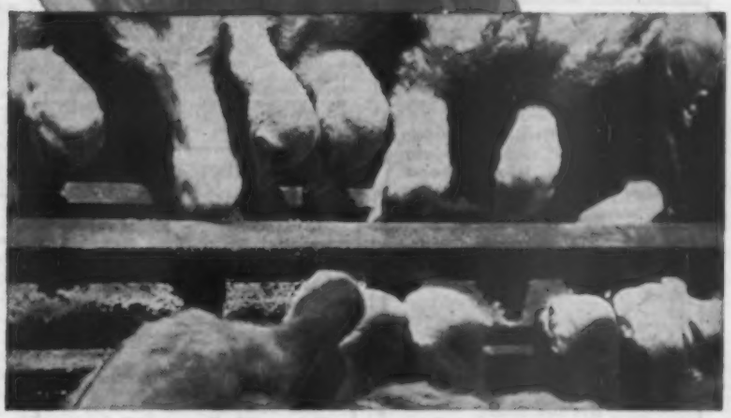

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ASSISTANT MANAGER FOR FEED OPERations. Stanton's Shopping Center, P.O. Box 231, Alvin, Texas.

EXPERIENCED FEED SALESMEN TO sell dried molasses and new expanded dog food. Write us as to qualifications, territory desired and salary requirements. Doane Feed Products Co., P.O. Box 1108, Joplin, Mo.

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Highway Trailer, grain box, single axle trailer, good condition, good rubber.
Trailmobile, 24-ft. frame, with 5 bulk compartments, hydraulic gates, auger and 22-ft. boom. Removable partitions and hinged V-bottom. Can be used for bulk, sacks or other material, new condition, good rubber.
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CONFERENCE

(Continued from page 84)

The yolk discoloration factor was thought to be gossypol, which conclusion is in agreement with the work reported by a number of other laboratories including Dr. C. R. Grau, University of California. It was believed that the pink whites might be due to the presence of malvalic acid in the oil.

Amino Acids—There were six papers presented on amino acids. The first of these was concerned with **"Amino Acid Supplementation and Growth Rate"** by Dr. Richard S. Gordon, Monsanto Chemical Co., St. Louis. Dr. Gordon used purified diets in this work and showed a specific requirement by the chick for glycine. Dr. Gordon also obtained a growth response with five and 10% glutamic acid and leucine added to a 21% casein diet.

The second amino acid report was given by Dr. Walter S. Wilkinson, Louisiana Agricultural Experiment Station, Baton Rouge, and was concerned with **"The Utilization of the D-L- and DL-isomers of Essential Amino Acids for Growth in the Chick."** Dr. Wilkinson reported on a very extensive series of experiments. Most of the data reported have been previously reviewed. The data were certainly fundamental in nature. If a feed nutritionist is particularly interested, it is recommended that contact be made direct with Dr. Wilkinson. The availability of DL amino acids is not necessarily the sum of the D- and L- forms but is a complex

problem which depends on the level of the DL mixture and on the particular amino acid in question.

The third paper, presented by Dr. C. W. Carlson, South Dakota State College, Brookings, was entitled **"An All or None Response from Lysine."** According to Dr. Carlson these experiments were initiated in an attempt to determine the effect of supplementing turkey diets containing suboptimal levels of protein with amino acids. Literature published during the past five years was reviewed. Beltsville Small White poults of mixed sexes were the experimental subjects. The birds were kept in batteries and fed a 20% protein diet. The only consistent response obtained in these studies was with a 0.5% supplementation of L-lysine to a 20% protein diet previously supplemented with 0.2% methionine and 0.6% glycine. With these three supplementations the growth obtained was equivalent to that when a 29% protein formula was used as positive control. Dr. Carlson emphasized that this was a preliminary report.

The fourth report in the amino acid field was given by Dr. H. N. Waterhouse, Illinois Agricultural Experiment Station, Urbana, Ill. The title of this paper was **"Glycine-Arginine, Glycine-Creatine Interrelationships."** In agreement with Dr. Gordon quoted before, Dr. Waterhouse pointed out that there is an independent requirement for glycine in the chick. A response was also obtained by adding creatine to the diet and it was stated that creatine and glycine were functioning independently. The requirements for arginine, creatine and glycine in this study were reported to be 1.6%, 0.5% and 2-4% respectively. It is important to note that creatine was shown to improve growth in these studies when fed in the presence of arginine and glycine.

The fifth paper in the series was presented by J. S. Adkins, University of Wisconsin, Madison, and was entitled **"Arginine Requirement of the Laying Hen."** Mr. Adkins used arginine-low diets which contained 0.37% L-arginine or 0.5% L-arginine in these experiments. It was concluded from these studies that requirement of the laying hen for L-arginine was between 0.60 and 0.74% of an 11% protein diet. Thus the arginine requirement calculates out to be 6% of the protein of the 11% protein diet.

The final paper on the program and in the amino acid series was presented by Dr. Hans Fisher, Rutgers-The State University, New Brunswick, N.J., and was entitled **"Amino Acid Requirements for Maintenance in the Adult Chicken."** Dr. Fisher differentiated between maintenance requirement and maintenance level in the adult chicken. There is a high requirement for arginine, leucine and methionine for maintenance and a zero requirement for histidine. There is a high correlation between the composition of feather protein and the amino acid requirements for maintenance in the adult chicken. Summary data were presented to show that there was a close resemblance between the amino acid requirements of man, the fowl, and the adult chicken for maintenance.

In studies reported by Dr. Fisher, diets were fed containing 12 and 24% peanut protein. At the 12% level there was a response to methionine but not to lysine. At the 24% protein level in the case of the adult chicken, there was a depression with methionine addition alone but a response to lysine and an additive response to a combination of lysine and methionine. This was interpreted to mean that the lysine requirement for maintenance is extremely low while that for methionine is high. The reverse is true for growth. What this means is that when the adult animal is just being barely maintained the most severe deficiency is methionine and not lysine, whereas with the higher protein level (24%) new tissues are being formed and a lysine deficiency is precipitated.

In summary, the requirement for a specific amino acid is a function of the protein level, since varying amounts of the protein will be used for maintenance and for growth depending on the total protein content of the diet, and the requirements for individual amino acids for maintenance and growth differ.

GENERAL SUMMARY — Some of the pertinent points which were brought out during this conference and which might be considered as new findings might be listed as follows: (1) The importance of using a stabilized vitamin K in vitamin premixes and manufactured feeds; (2) the interrelationship of energy and the phosphorus requirement of the chick; (3) the phosphorus and calcium requirements of turkeys between 8 and 24 weeks of age which may be reduced in the future; (4) the chelating effect of soybean protein on the utilization of trace minerals; (5) the report from Arkansas to the effect that a portion of the growth promoting activity of condensed fish solubles may be traceable to a copper/molybdenum interrelationship; (6) earlier reports on the importance of reducing the Caloric intake of broiler strain laying hens have been substantiated; it was pointed out during the report from Texas A&M that Caloric intake could be reduced through the introduction of inert materials or high fiber levels in feeds; (7) new data were provided on the utilization of saturated fatty acids in the chicken, and Cornell University has certainly provided information which shows that whole soybeans can be used in feeds when properly processed through flaking; (8) the amino acids presentations were largely of a fundamental nature and do not have too wide an application in the field at present.

Elevator Purchased

TOLEDO, OHIO—In a $1 million transaction, Northwestern Mutual Life Insurance Co., Milwaukee, purchased a 2 million bushel grain elevator on the Maumee River at Toledo from the Norris Grain Co., Toledo. Officials said the facility will be leased to Cargill, Inc.

Eastern Federation Meeting Program Details Reported

LAKE PLACID, N.Y.—Northeastern feedmen in large numbers will attend the annual convention of the Eastern Federation of Feed Merchants June 12-14 at Whiteface Inn, Lake Placid, where a program providing an analysis of agricultural and feed industry trends is designed to develop practical guidelines for feed business management.

Frank D. Reed, poultry department, University of Maine, will analyze the poultry industry status. Dr. Kenneth L. Robinson, Cornell University's agricultural economics department, will talk on the dairy situation.

Louis P. Shannon, manager of the extension division of E. I. du Pont de Nemours & Co., Wilmington, Del., has as his presentation theme, "Raising Your I.I.Q.," Dr. John Sharp, agricultural economics department, Ohio State University, will build his presentation around a study made of 140 Ohio feed manufacturing and merchandising businesses which was geared particularly to assembling operating costs experiences. Another speaker is Kinsey M. Merritt, nationally known for his talks on selling.

Feed men who are golf enthusiasts will participate in a tournament which will have 100 contestants. There's a ladies' tournament, too.

The convention returns to the Whiteface Inn this year because of popular demand. With the imposing program offered, a record attendance is assured, say convention officials.

Virginia Firm Drops Retail Feed Sales

NORFOLK, VA.—Discontinuation of retail sales and concentration on large-scale production of broilers has been announced by the Berkley Feed Corp.

These, along with other operational changes, are being made "to conform with national business trends," according to an announcement by Clyde F. Hill, Jr., president, and James M. Hill, executive vice president, of the firm.

Berkley Feed and its subsidiary, Suffolk Chick Hatchery, have an annual capacity of 5 million chicks. They will market broilers through Rockingham Poultry Co-op from its Richmond and Broadway plants. James Hill said the feed consumed by the broilers is expected to replace the tonnage formerly sold through retail channels.

The wholesale egg department, a unified operation from chick to packaged egg, has been incorporated as Berkley Egg Corp.

The farm and garden seed and equipment business has been incorporated into a new corporation called Turf & Garden Suppliers, Inc., to be engaged exclusively in wholesale distribution.

Officers remain the same and subsidiaries will be continued.

NEW HONEGGER DEALERS

FAIRBURY, ILL.—Three additional dealers will handle the complete line of products manufactured by Honeggers' & Co., Inc., including livestock and poultry feeds, Honegger Layers and farm buildings and equipment. The dealers are Bewley's Farm Service, Greensburg, Ind.; Weidenhoeft Feed Service, Columbia City, Ind., and Iowa County Co-op, Mineral Point, Wis.

R. M. Fisher

W. N. Houle

Pfizer Names 3 New Sales Representatives

NEW YORK—Three new sales representatives have joined the agricultural division of Chas. Pfizer & Co., Inc. Robert M. Fisher, formerly manager of the Lamar Feed Mill, Paris, Texas, has joined the midwestern field staff of the drug and chemical firm. He is located at Sand Springs, Okla.

E. E. Swann

Mr. Fisher has also served as manager of the poultry division of the Save-Way Mill in Chickasha, Okla. He is a graduate in agriculture from the Oklahoma State University of agriculture and applied science.

Wallace N. Houle, formerly in a life insurance agency at Little Falls, Minn., has joined Pfizer's animal health sales staff in the Midwest. Prior to the insurance business, he was with Red Owl Stores in Little Falls from 1949 to 1951. He attended the University of Wisconsin. Mr. Houle will headquarter in Fond du Lac, Wis.

Ernest E. Swann has joined Pfizer's eastern regional agricultural staff. He was formerly with the Pillsbury Co., assigned to the southern sales territory with headquarters at Atlanta, Ga. Mr. Swann is a graduate of the University of South Carolina. He now locates at Macon, Ga.

Red Meat Production In Canada Up 8.5%

WINNIPEG — Total production of the red meats from livestock slaughtered in Canada in 1959, including inspected, other commercial and farm kill, was 2,661,000,000 lb. This was an increase of 8.5% from 2,453,000,000 lb. in 1958.

A reduction of 3% in beef and 13.5% in veal production were more than offset by a 25% increase in pork. Farm output of cattle was about 15% lower than in 1958, but live cattle exports decreased from 658,095 head to 312,351. Live exports of calves, on the other hand, rose from 12,389 to 30,347 head.

These figures are contained in the annual estimates of production and consumption of meats in Canada. The report, compiled by the Bureau of Statistics, was released recently in Ottawa.

Nutrena Names Quality Control Manager

MINNEAPOLIS—Warren A. Armstrong, Nutrena Feeds formulation manager in Minneapolis, has been assigned the additional duty of quality control supervisor, according to Robert H. Mason, products and services manager. Mr. Armstrong will oversee feed formulas, ingredient quality and potency testing programs on all feed produced at Nutrena's 14 mills, Mr. Mason said.

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CONCENTRATES

(Continued from page 8)

importance of roughage in a beef ration can best be illustrated by the fact that it is highly variable in its nutrient value."

He noted a Montana report showing that samples of alfalfa that were tested varied from 5.6% to more than 20% protein. Another study showed a wide variation in phosphorus content in 160 samples of alfalfa in Montana.

The nutritive value of a poor quality roughage is reflected in poor daily gains which cannot be corrected by addition of protein, vitamin A or minereal, Dr. Schooley said. Considering this aspect plus the highly variable quality of roughage, he continued, it would seem logical to attempt to control this variable to some degree by lowering the percentage of roughage.

"The established commercial feedlot operator," he said, "has been feeding more and more concentrates and continuously lowering the per cent of roughage fed. . . . The small feeder frequently believes that roughage is the cheapest part of the ration. Should they keep accurate records, it is forecast that a great many farmers would find that they lost money."

Dr. Schooley went on to cite a special test set up under the direction of Dr. L. B. Embry of South Dakota State College. Six different additives and combinations of additives were used with different lots of cattle on rations containing 20, 35 and 50% roughage. In a fourth test, 50, 35 and 20% roughage rations were each fed for one third of the feeding period.

The low-roughage fed cattle finished earliest and showed the most growth stimulation from use of dynafac and dynafac plus diethylstilbestrol, Dr. Schooley pointed out. Results with the higher roughage rations, he noted, were mixed as to benefits of the additives.

Reports Reviewed

The Armour scientist then reviewed 46 dynafac feeding tests reported over almost four years and involving more than 2,000 cattle. Both college and commercial studies were cited in the report. Special attention, Dr. Schooley noted, was paid to the concentrate-roughage ratio of the rations, which had not been especially noted when the tests were first made.

"Dynafac premix has enjoyed excellent popularity under western feeding conditions where barley is the primary grain used in most beef cattle rations," Dr. Schooley said. "This has perhaps given rise to the thought that the presence of barley in a ration as opposed to corn allowed for a dynafac premix response. However, such is not necessarily the case as shown by a low roughage-high concentrate beef feeding trial recently completed by Dyer of Washington."

Additional indications that roughage levels and not the type of grain may be involved in the maximum response received from dynafac premix appear in other data, Dr. Schooley indicated.

He also presented compilations of studies which he said provide further confirmation of the importance of roughage levels. Negative results were presented in one compilation and positive results in another compilation of trials. These, he said, suggest that dynafac premix performance is related to roughage levels fed.

Dr. Schooley's report included a summary tabulation of all dynafac studies reviewed. (See Table 1 for total of all trials.) The additive, he said, gave an average improvement of 8.98% in all 46 tests. However, he added, the best gains from use of the additive were made when the roughage content was in the neighborhood of 20% of the ration.

Dr. Schooley presented Figure 1 to indicate greater response in high concentrate rations.

"One problem faced by feeders in using high concentrate-low roughage rations is fear of feedlot bloat," he continued. "Dynafac premix has been fed to 322 cattle in trials at South Dakota State over a three-year period with no losses from bloat. There was a 1.64% loss from bloat in 244 cattle in the same trials which did not receive dynafac. Data from large feedlot operators confirm dynafac's bloat-control value."

TABLE 1

	—Total All Trials— Control	Dynafac
No. Trials	46	46
No. Cattle	1128	1057
Av. Daily Gain	2.56	2.79
% Improvement		8.98
Feed/cwt. Gain	1014	975
% Improvement		3.85
Extra Return/Hd.		$3.13
Return/$ Dynafac Invested		$6.17

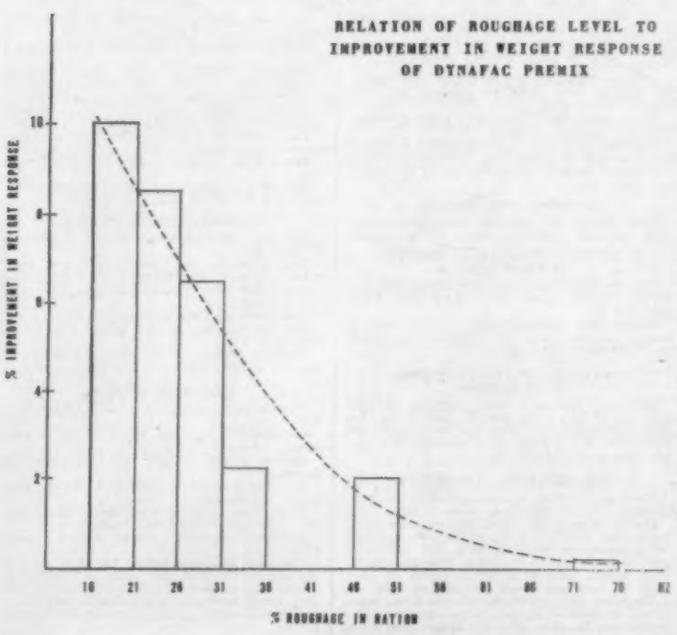
Florida Appointee

TALLAHASSEE, FLA. — Gov. LeRoy Collins has appointed Lee Thompson, a State Department of Agriculture career man, as commissioner of agriculture, to succeed the late Nathan Mayo, who died recently.

Mr. Thompson promised no policy or personnel changes during the nine months he will serve.

FIGURE 1

RELATION OF ROUGHAGE LEVEL TO IMPROVEMENT IN WEIGHT RESPONSE OF DYNAFAC PREMIX



CAPITAL COMMENT

(Continued from page 8)

Valley to the Southwest to meet competition of the buy-sell truckers who now operate freely without ICC regulation.

However, ICC has informed the carriers that they cannot approve lower rates which represent more than out-of-pocket costs to the carriers. This represents only part of what the carriers requested in meeting this type of truck competition.

A more important aspect of this attitude on the part of ICC is the probability that, when the next Congress convenes, there will, in all probability, be a renewed attack on the agricultural exemption for truckers of agricultural commodities.

Trade sources interested in the farm truck hauler exemption say that abuses of the original purpose of the exemption such as the buy-sell arrangement between privately-owned trucks and itinerant truckers, whereby they take title to farm products and deliver and resell at specified destinations, has been an irritant to ICC and other opponents to the exemption and surely will re-open the fight on this provision of the law.

It is feared that, ultimately, the agricultural exemption will be erased from the law books due to the abuses which have accumulated.

In any event, it may be wise for shippers of oilseed products to keep a weather eye on this problem as the new Congress convenes next January and not to rely on the buy-sell arrangement as a probable permanent cost-cutting factor in their transportation of oilseed products among others.

Wheat Bill

WASHINGTON—Despite the fact that the Senate Agriculture Committee has approved a wheat bill, there is still no positive assurance that it can pass the Senate and the House. And if it should pass both chambers in its present form, there are some definite indications that the President would veto the measure.

It does not have the backing of the Democratic chairman of the committee, nor that of the ranking Republican minority. It is expected that both of these gentlemen will oppose the measure in its present form—particularly the 80% of parity support for wheat for the next three years.

The only feature of the measure which meets any considerations advanced by the President in his farm message earlier this year was that which would authorize a cutback from present statutory acreage allotments for wheat by 20%. It also would cut back small farm minimum acreage exemption from marketing quotas from 15 acres to 12 acres.

However, while this measure does not seem to fit any pattern that the White House will accept, it is still likely there will be a wheat bill this year. It is too early to resolve the outlook.

Bill Examined

Examination of the wheat bill approved by the Senate Agriculture Committee this week—a measure which did not obtain support from the two ranking members of the committee and which undoubtedly will be opposed by those leaders on the Senate floor as it now stands—reveals objectives which are unlikely to meet either USDA or White House approval.

For example, the 80% of parity support provision for the wheat crop years of 1961-63 inclusive amounts to a dollars and cents increase of 12¢ per bushel for that crop and a concomitant increase in the export subsidy for that commodity.

Another provision, that of a payment in kind of 50% of normal yields for the farm for the 20% cut in acreage allotments for that farm—on the basis of the statutory national minimum of 55 million acres—indicates an even higher payment to wheat farmers, who, in the past, have stayed within their acreage allotments for that crop. Trade sources from the Southwest indicate that the P-I-K program under this bill would probably amount to about 10 bu. per acre average in the hard winter wheat belt. At this time, USDA has not made an exact estimate of the quantity of wheat involved which would come out of Commodity Credit Corp. stocks and be available for sale in the open market without restrictions.

Speculative market observers express the opinion that this free market wheat will be the price-making factor for the 1961 crop year. It is hardly believed that the wheat farmer will be ready to pay storage charges on the wheat obtained from CCC in the form of warehouse receipts. Some think that the wheat farmers may even dump this wheat freely on the market to head off storage charges.

Under present conditions under UGSA, most farm wheat delivered under loan carries a wheat protein notation on inspection tickets, and it is unlikely that the farmer would be willing to take back warehouse certificates unless these documents indicate delivery at least equal to the quality of wheat that the producer could show had been delivered by him to CCC under earlier loan programs.

The Senate committee-approved bill would cut the present 15-acre marketing quota exemption to 12 acres—a modest cut but far from approaching the complete elimination of this feature of wheat legislation which the USDA and the administration have urged. This particular provision also would prevent new wheat growers from use of the new 12 acre exemption, because there is a provision limiting those with less than 12 acres planted during the past three years to the highest acreage of the three-year period. The most drastic effect of this provision is that it will slow down or halt the steady expansion which has been taking place under the 15-acre exemption now in effect.

Penalties Increased

Overplanting penalties are sharply increased to a point where Senate observers say that their cutback in acreage will be substantially in excess of the 20% cutback for wheat farmers who have complied with acreage allotments in the past.

The new bill proposes to eliminate completely the present provision of the law which grants a 30-acre limitation on farms producing wheat to be fed or used as food on farms where produced.

As usual, before the provisions of the new bill—if enacted—can be put into effect there must be a two-thirds favorable vote by wheat producers. Failure to attain that majority of wheat producers eligible to vote, all producers would be eligible for price supports at 50% of parity for the 1961 crop and each subsequent crop of wheat with no acreage limitation.

It must be remembered that the 15 or 12-acre exemption wheat producer is not eligible to vote in referendums.

USDA officials at the workshop level say that the elimination of the 30-acre feed wheat exemption would open up such production without any acreage limit. However, since this provision as it now stands has rarely been used, it is doubted that there would be any broad expansion in this sector.

To Tour Europe

NACOGDOCHES, TEXAS—Steele Wright, president and general manager of the Texas Farm Products Co., Nacogdoches, left April 30 with a group of members of the East Texas Chamber of Commerce for a tour of western Europe. The businessmen will visit England, Holland, Switzerland, Italy and France. They will return May 19.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

ALFALFA MEAL

Boston: Demand fair; supply adequate; dehydrated 17%, sacked, $72; suncured 13%, bulk, $47.

Memphis: Demand fair; trend steady to lower; supply ample; dehydrated, 17% protein, guaranteed 100,000 units, vitamin A, $51.50, bulk.

Chicago: Demand steady; trend firm; supply fair; dehydrated, 17% protein, 100,000 units vitamin "A", $53.50; 15% protein, suncured, $48.50.

Philadelphia: Demand slow; supply fair; trend unsettled; 17% dehy, $71.

St. Louis: Demand slow; supply tight; trend lower; suncured, 13% fine, sacked, $46; dehydrated, 17%, 100,000 A pellets, demand slow, trend lower, supply ample, bulk, $55.

Kansas City: Demand slow; trend steady to weak; supply adequate; 17% dehydrated alfalfa, guaranteed 100,000 A on arrival, pellets $60@62 bulk; reground pellets $61@63; 18% dehydrated alfalfa, guaranteed 125,000 A on arrival pellets $53@55 bulk, reground pellets $54@56 bulk; 20% dehydrated alfalfa, guaranteed 150,000 A on arrival; pellets $57@58 bulk; reground pellets $58@60 bulk; suncured alfalfa, demand slow, supply scarce, 13% pellets $36@37 bulk; No. 1 ¼ in. $37.50 sacked.

Portland: Demand fair; trend steady; supply good; $67.40 (dehydrated), $45 (suncured).

Omaha: Demand slow; trend easy; supply tight; 17% dehydrated, 100,000 A units, bulk pellets, $51; sacked meal, $56, Omaha basis.

New Orleans: Demand fair; supply adequate; trend steady; 17% protein, 100,000 vitamin A, $63@64 bulk; $66@67 sacked.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A, $62@63 pellets.

Ft. Worth: Demand fair; supply sufficient; sacked: Dehydrated 17% 100,000 A, $55 @56 rail or truck; 20% Pro. 150,000 A, $57 @58 truck; suncured: 13% ¼ in. grind No. 1, $47 truck; 15% fine ground dry, $49; with 2% fat added, $51 rail or truck.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured, $51, delivered truck loads, sacked; 136,000 A unit dehydrated, $74, delivered truck loads, sacked.

Los Angeles: Demand fair; supply ample; trend unchanged; dehydrated meal, 17% protein, 100,000 A, $51@52; dehydrated pellet meal, 17% protein, 100,000 A, $53@55; suncured meal, 15% protein, $49@50; suncured crumbles, 15% protein, $51@52.

Minneapolis: Steady market, no information yet on new crop; 17% dehydrated, 100,000 units vitamin A reground pellets $58, oiled reground pellets $60.

Buffalo: Demand fair; supply adequate; trend steady; $71, sacked, Boston.

Denver: Demand fair; trend slow; supply ample; dehydrated, $52.

ANIMAL FAT (STABILIZED)

Kansas City: Demand slow; trend easy; supply ample; stabilized prime tallow, 5¾¢ lb.

Boston: Demand and supply good; tallow, 6½¢ lb.; yellow grease, 6¢ lb.

Ogden: Supply ample; $8 cwt., bulk.

New Orleans: Demand fair; trend easy; supply adequate; 6½¢ lb. tank cars.

San Francisco: Demand fair; supply ample; bleachable fancy, 6¾¢ lb.; yellow grease, 5¾¢ lb.

Louisville: Demand good; supply fair; trend steady; bleachable white, 6½¢ lb.; white tallow, 6¼¢ lb.; yellow grease, 5¾¢ lb.

Ft. Worth: Demand good; supply limited; prime tallow, tank cars, 6¾; drums 8½¢; f.o.b. north Texas packing plants with returnable drums.

St. Paul: Demand good; supply ample; bleachable fancy market off ¼¢ from last week to 5¾¢ lb., f.o.b. producer's plant.

Chicago: Demand good; trend firm; supply fair; tank truck or carlots, bleachable fancy tallow, cwt., $6.12½; yellow grease, $5.50.

BARLEY FEED

Ogden: Supply ample; rolled, $44@45 (whole barley, $39@40).

San Francisco: Demand fair; supply ample; rolled, $60; ground, $59.

Boston: Demand slow; supply adequate; sacked, $48.

Philadelphia: Demand slow; supply fair; $46.

Portland: Demand strong; supply fair; trend steady; $43.50.

Baltimore: Demand and supply fair; trend higher; $47.50, sacked.

Chicago: Demand slight improvement; trend higher; supply fair; $37, sacked.

New Orleans: Demand slow; supply adequate; trend unchanged; $49@51 sacked.

Milwaukee: Demand fair; supply ample; trend unchanged; feed barley, 92¢ bu., bulk; barley feed, $37.50, sacked; ground feed barley, $42, in cwt. containers.

Seattle: Demand fair; trend steady; supply good; $45, truck lots.

Los Angeles: Demand fair; supply adequate; trend unchanged; standard pellet, $2.85 cwt., sacked; standard ground, $2.85 cwt., sacked.

Denver: Demand weak; trend slow; supply fair; rolled, $1.95.

BONE MEAL (STEAMED)

Portland: Demand light; trend steady; supply ample; $84.50 bulk to $87.50 sacked.

Boston: Demand and supply steady; $105.

Chicago: Demand slow; trend sharply lower; supply ample; 100 lb. bags, $97.50.

San Francisco: Demand good; supply ample; $75 sacked.

Louisville: Demand slow; supply light; trend steady; $90@100, sacked.

Cincinnati: Demand fair; trend steady; supply ample; $95 sacked, Cincinnati.

New Orleans: Demand slow; trend easy; supply ample; $90@100, sacked.

Ft. Worth: Demand good; supply light; sacked: $100 f.o.b. Ft. Worth local manufacture; imported $83.50, f.o.b. Houston.

Seattle: Demand good; trend firm; supply limited; $92, ex-dock, sacked.

Los Angeles: Demand fair; supply adequate; trend unchanged; imported, $80, 20-ton lots, sacked.

Buffalo: Demand good; trend steady; supply limited; $105, sacked.

Denver: Demand fair; trend slow; supply ample; $107.

BREWERS DRIED GRAINS

San Francisco: Demand fair; supply ample; $54, sacked.

Louisville: Demand fair; trend steady; supply good; $47, sacked.

New Orleans: Demand fair; trend easy; supply good; $47@48, sacked.

Philadelphia: Demand and supply fair; $49.50.

Boston: Demand active; supply tight; 26%, nearby, $47.50; May shipment, $45.40.

Cincinnati: Demand fair; supply adequate; trend lower; $43.

St. Louis: Demand fair; supply ample; trend steady; $37.

Chicago: Demand and supply fair; trend easier; 26% protein, $37@38.

Ft. Worth: Demand slow; supply sufficient; 26% protein, $47.

Milwaukee: Demand and supply fair; trend lower; $37.50, bulk; $45.50, 100 lb. sacks.

Los Angeles: Demand fair; supply limited; trend unchanged; $49.50.

New York: Demand good; trend steady; supply satisfactory; $49.50 bulk; $55 sacked, Boston.

Buffalo: Demand fair; trend lower; supply good; $47, Boston.

BREWERS DRIED YEAST

Cincinnati: Carlots 11¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., all sacked, f.o.b. New Jersey.

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots, sacked; 9¾@12¼¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10½@12½¢ lb., ton lots, sacked.

St. Louis: Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots, sacked; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Boston: Demand steady; supply ample; 11¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb., sacked.

Louisville: Demand fair; trend steady; supply good; 10@10½¢ lb., sacked.

Omaha: 10½¢ lb.

Portland: Demand fair; supply ample; trend good; $200 ton, sacked.

Cincinnati: Carlots 11¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12 cwt., sacked.

Los Angeles: Demand fair; trend unchanged; supply limited; 10¢ lb. 5-ton lots, sacked; 11¢ lb. 1-ton lots, sacked; 12¢ lb. less than ton lots, sacked.

Buffalo: Demand good; trend steady; supply ample; $9.15 cwt.

Denver: Demand and trend slow; supply adequate; $160.

BUTTERMILK (CONDENSED)

Chicago: Demand slow; trend steady; supply fair; 500 lb. barrels, cwt., $3.30@3.75.

Ogden: Supply good; $4.40 per 100-lb. drum.

San Francisco: Demand fair; supply good; 55 drums.

Boston: Demand and supply steady; 3.95¢ lb.

Philadelphia: Demand slow; supply fair; $4.25.

Louisville: Demand dull; trend steady; supply zero; $4.25 cwt. in paper drums.

New Orleans: Demand slow; supply adequate; trend unchanged; $4.25@4.30 cwt. in drums.

Los Angeles: Demand fair; supply adequate; trend unchanged; 5½¢ lb. 100 lb. lots in barrels; 4½¢ lb. 500 lb. lots in barrels.

CALCIUM CARBONATE

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100 lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50 lb. bags, $12.75; 100 lb. bags, $12; bulk, boxcar, $10.50; bulk, hopper, $10; coarse grind $1 premium, delivered Minneapolis.

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50 cwt.

Seattle: Demand and trend steady; supply good; $14 ex whse., sacked.

Los Angeles: Demand fair; supply adequate; trend unchanged; flour $10.15, meal $11.15, 20-ton cars, sacked.

CONDENSED FISH SOLUBLES

Boston: Demand fair; supply plentiful; 2¢ lb., f.o.b. shipping point.

New Orleans: Demand light; trend easy; supply fair; $40@45 ton, f.o.b. Gulf.

Los Angeles: Demand fair; supply ample; trend unchanged; 2¾¢ lb.

New York: Demand good; supply satisfactory; trend stronger; $50.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $43.60, meal $66.60.
Atlanta: Feed $47, meal $70.
Birmingham: Feed $45.60, meal $68.60.
Boston: Feed $48.50, meal $71.50.
Chicago: Feed $37, meal $60.
Cleveland: Feed $44.90, meal $67.90.
Denver: Feed $47.20, meal $70.20.
Ft. Worth: Feed $45.70, meal $68.70.
Indianapolis: Feed $42.20, meal $65.20.
Kansas City: Feed $37, meal $60.
Louisville: Feed $43.60, meal $66.60.
New Orleans: Feed $46.90, meal $69.90.
New York: Feed $48.10, meal $71.10.
Norfolk: Feed $47.50, meal $70.50.

CORN OIL MEAL

Louisville: Demand slow; trend steady; supply light; $54.45, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $45.

COTTONSEED OIL MEAL

Omaha: Demand and trend easy; supply ample; 41% solvent, $61.70 bulk, delivered Omaha.

San Francisco: Demand good; supply tight; 41%, $68.50; 44%, $70.

Chicago: Demand fair; supply ample; trend firm; Memphis basis, hydraulic, $54.

Louisville: Demand fair; trend easy; supply normal; $62.50 for new or old process, sacked; down $1.50 for both.

New Orleans: Demand slow; trend steady; supply ample; $67.50@68, bulk; $71@72, sacked.

Kansas City: Demand slow; trend weaker; supply ample; 41% old process, $53@53.50; solvent process $52@52.50, Memphis.

Boston: Demand slow; supply light; $76.70.

Memphis: Demand slow; trend lower; supply ample; prime 41% protein, old process, $52.50, bulk; new process, 41% solvent, $50.50, bulk.

Wichita: Demand good; supply fair; 41% old process, $68, sacked.

Portland: Demand fair; trend normal; supply ample; $73@76.

Cincinnati: Demand poor; trend steady; supply adequate; $72.50.

Ogden: Supply good; 41%, $70@72.

Philadelphia: Demand slow; supply fair; $71.

St. Louis: Demand slow; trend easy; supply ample; solvent, $56.50.

Ft. Worth: Demand slow; offerings sufficient; 41% old process, $65, f.o.b. mills Ft. Worth; carlots solvent 2% fat added, $58.50, delivered Ft. Worth; pellets $2 additional; hulls $20.

Seattle: Demand good; trend easy; supply ample; 41% expeller process, $75, delivered truck lots.

Los Angeles: Demand slow; trend weaker; supply adequate; $68@69.

Buffalo: Demand fair; supply adequate; trend steady-to-lower; $74, sacked, Boston.

Denver: Demand good; trend steady; supply fair; $84.

CURACAO PHOSPHATE

New York: $48 sacked, $46 bulk, f.o.b. New Orleans, Jacksonville or Philadelphia.

D-ACTIVATED ANIMAL STEROL (POWDERED)

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9¾¢ lb.; 3,000 ICU 11¢ lb.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Cincinnati: 18% phosphorus $81.02; 14% phosphorus $71.03, f.o.b. Cincinnati.

Butte, Mont.: Minimum phosphorus 18%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .18%, $81 (or $4.50 per unit of P), f.o.b. Butte, 100 lb. multiwall bags; bulk $78; truck loads of less than 10 tons $10 more, bagged or bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $74.35 net ton, f.o.b. Houston, 100 lb. multiwall bags; $71.25, bulk.

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; guaranteed uniform analysis; carload $66.25, sacked, 100-lb. multiwall bags, bulk $63.25; truck load $67, sacked, in 100-lb. multiwall bags, bulk $64, f.o.b. Coronet, Fla.

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $57.07, f.o.b. Tupelo in 100-lb. multiwall bags, $54.07 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $71.80 (or $3.99 per unit of P), f.o.b. Wales in 100 lb. multiwall bags, $3 less in bulk.

Cincinnati: 18% phosphorus, $81.02; 14% phosphorus, $71.03, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Portland: Demand fair; trend steady; supply ample; $93, sacked.

Cincinnati: 18½% phosphorus $92.15, f.o.b. Cincinnati.

Trenton, Mich.: 18½% P $83, bulk, boxcar/hopper car; $86, bagged, in carloads or truck loads; $96, bagged, in less than carload lots; 21% P, $94.65, bulk, boxcar/hopper car; $97.64, bagged, in carloads or truck loads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

Chicago: Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100 lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100 lb. papers, $97.65 and less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $86 (or $4.65 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices, for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Columbia, Tenn.: Minimum phosphorus 18¼%, minimum calcium 24% $86, f.o.b. Columbia, in 100 lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Minimum phosphorus 18.5%, minimum calcium 20%, maximum calcium 22%, maximum fluorine .12%; carload and truck load $80.50, sacked, in 100 lb. multiwall bags, bulk $77.50, f.o.b. Texas City.

Denver: Demand good; trend steady; supply adequate; $92.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; solubles, $79, sacked.

Louisville: Demand slow; trend steady; supply good; bourbon grains, light $51, sacked; dark $53, sacked; solubles $73, sacked.

Philadelphia: Demand slow; supply light; $58.50.

Boston: Demand good; supply short; light, $56; dark, $57; both May shipments.

Cincinnati: Demand fair; trend steady; supply adequate; by truck, $52.50, sacked.

Seattle: Demand fair; trend firm; supply limited; $69, delivered truck lots, sacked.

Buffalo: Demand and supply fair; trend steady; $57, Boston.

DRIED BEET PULP

Portland: Demand good; trend steady; supply fair; $45.50.

San Francisco: Demand good; supply fair; $42.80.

Ogden: Supply ample; $41@46 ton.

Boston: Demand good; supply tight; sacked, $67 nominal.

New Orleans: Demand fair; trend steady; supply adequate; $54@55 papers.

Milwaukee: Demand good; trend steady; supply limited; plain, $59; molasses, $61.50.

Seattle: Demand good; trend firm; supply limited; $52, delivered carlots, sacked.

Los Angeles: Demand slow; supply ample; trend unchanged; $43.30@44.90.

Denver: Demand good; trend fair; supply very limited; $32.50, f.o.b. Colorado factories.

Buffalo: Demand fair; trend higher; supply poor; $70, nominal, sacked, Boston.

DRIED BUTTERMILK

Louisville: Demand slow; trend steady; supply normal; $13@14 cwt., sacked.

San Francisco: Demand fair; supply ample; 12½¢ lb., sacked.

New Orleans: Demand fair; trend steady; supply ample; $13@14 cwt., sacked.

Boston: Demand good; supply short; 14¢ lb.

Chicago: Demand quiet; trend steady; supply fair; sacked cwt., medium acid, $11.75@12.25; sweet cream, $11.75@12.25.

Ogden: Supply ample; $17.25 cwt., bulk.

Ogden: Supply ample; $17.25 cwt., bulk.

Los Angeles: Demand fair; supply adequate; trend unchanged; 13¾¢ lb., sacked.

Milwaukee: Demand fair; supply limited; $13.

Buffalo: Demand fair; trend steady; supply limited; $12.75 cwt.

DRIED CITRUS PULP

Boston: Demand slow; supply adequate; $54@54.50.

New Orleans: Demand fair; trend easy; supply normal; $32.50@35, f.o.b. Florida.

San Francisco: Demand and supply fair; $49, sacked.

Los Angeles: Demand slow; supply ample; trend unchanged; orange pulp, $40; lemon pulp, $38.

Buffalo: Demand and supply fair; trend higher; $37.50, sacked, f.o.b. Florida points.

DRIED SKIM MILK

Philadelphia: Demand slow; supply fair; $13.

Cincinnati: Demand fair; trend steady; supply adequate; 12@13¢ lb., sacked.

Ogden: Supply ample; $15.15 per 100 lb. drum.

San Francisco: Demand and supply fair; 14½¢ lb., sacked.

Louisville: Demand slow; trend firm; supply ample; $13@14 cwt., sacked.

Boston: Demand good; supply light; 13½¢ lb.

Chicago: Demand quiet; trend firm; supply ample; sacked, per cwt., $11.75@12.25.

New Orleans: Demand slow; supply ample; trend unchanged; $13.50@14 cwt.

Milwaukee: Demand fair; supply limited; $14.50.

Los Angeles: Demand fair; supply adequate; trend unchanged; 15¢ lb. less than ton lots, sacked; 14¾¢ lb. ton lots, sacked.

Minneapolis: Little bit more available, market tipped to downside, 13¢ lb.

Buffalo: Demand and supply fair; trend steady; spray, $12.85 cwt.

DRIED WHEY

Ogden: Supply ample; $7 cwt., sacked.

Philadelphia: Demand slow; supply fair; $6.25.

Cincinnati: Demand fair; trend steady; supply adequate; $5.75 cwt., sacked.

Portland: Demand fair; trend steady; supply good; $117, sacked.

Chicago: Demand slow; trend firm; supply adequate; sacked, per cwt., $5.75@6.

Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed, $5.25 cwt., producers' points.

San Francisco: Demand steady; supply good; $5.75 cwt., sacked.

Louisville: Demand slow; trend steady; supply normal; $6@6.50 cwt., sacked.

Boston: Demand and supply steady; 6¼¢ lb.

Wichita: Demand light; supply ample; $6.50 cwt., sacked.

New Orleans: Demand fair; trend easy; supply ample; $6@6.50 cwt.

Ft. Worth: Demand fair; supply adequate; carlots, standard $5.75, sacked, delivered Ft. Worth; ton lots, $6, f.o.b. warehouse Ft. Worth.

Seattle: Demand steady; trend easy; supply good; $6.25 cwt., ex whse., l.c.l.

Los Angeles: Demand fair; supply adequate; trend unchanged; $5.68 cwt., carloads, sacked; $5.93 cwt., l.c.l., sacked.

Minneapolis: Market steady; no change from last week, demand good, supply ample, $5.40@5.45 cwt.

Denver: Demand fair; trend steady; supply ample; $136.

FEATHER MEAL (HYDROLYZED)

Boston: Demand steady; supply tight; $80, f.o.b. shipping points.

Ft. Worth: Demand good; supply moderate; 85-87% protein, $82.50, sacked, f.o.b. trucks north Texas plants.

Salisbury, Md.: Demand spotty; supply ample; $80, f.o.b.

Los Angeles: Demand slow; supply adequate; trend unchanged; $1 unit of protein, sacked.

FISH MEAL

New Orleans: Demand dull; trend easy; supply ample; menhaden 60%, $103@105, sacked, f.o.b. Gulf; scrap $96@101, sacked, f.o.b. Gulf.

San Francisco: Demand slow; supply ample; $1.60 per unit of protein.

Louisville: Demand slow; trend steady; supply light; $145 nominal, sacked.

Cincinnati: Demand fair; trend lower; supply adequate; $132.

Boston: Demand steady; supply good; $110.

Ogden: Supply ample; $1.70 per unit, f.o.b. Coast, 65%, $115@117.

Chicago: Demand quiet; trend easier; supply liberal; menhaden, East Coast $100, Gulf $100, menhaden scrap, East Coast $96, Gulf $96; Canadian herring meal, a unit of protein $1.65.

Omaha: Demand good; trend strong; supply ample; 60% menhaden, $120, f.o.b. Omaha.

Portland: Demand fair; supply ample; trend steady; $118.10 based on 70% Canadian, sacked.

Ft. Worth: Demand fair; supply sufficient; sacked, 65% protein Peruvian $105, 60% protein menhaden $107, delivered Ft. Worth.

Milwaukee: Demand limited; supply good; trend weaker; 60%, $130, sacked, Chicago basis.

Seattle: Demand fair; supply good; trend steady; $1.75 per unit protein, delivered truck lots, sacked (Canadian production).

Los Angeles: Demand slow; supply smaller; trend unchanged; local production, 60% protein, $1.50@1.55 unit, sacked.

Buffalo: Demand just fair; trend lower; supply ample; 60% protein, menhaden, $120 ton, bulk; $125, sacked.

Minneapolis: Supply plentiful, demand slow but steady, and market firming up a bit; Gulf menhaden $117, sacked, truck lots, delivered Minneapolis, $1@3 stronger than last week; 70% herring, $1.65 per unit of protein, f.o.b. West Coast, no change; West Coast 60% blended $126@128, sacked, delivered Minneapolis, steady.

New York: Demand good; trend stronger; supply ample; 60% menhaden meal $115, sacked, f.o.b. shipping points.

Denver: Demand good; trend steady; supply fair; 60%, $135.

HOMINY FEED

New Orleans: Demand fair; trend easy; supply ample; $50@51, sacked.

Kansas City: Demand fair; trend steady; supply adequate; white or yellow, $35@35.50.

St. Louis: Demand sluggish; trend steady; supply ample; yellow, $39.50.

Boston: Demand slow; supply plentiful; $52.50.

Memphis: Demand poor; trend steady; supply ample; white, $43.50, bulk; yellow, $43.50, bulk.

Chicago: Demand fair; trend steady; supply adequate; $42.

Louisville: Demand dull; trend steady; supply ample; $51, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $45.

Milwaukee: Demand, trend and supply fair; $45.50, sacked; $41, bulk, Chicago basis.

Seattle: Demand fair; trend firm; supply good; $50, deliveerd carlots.

Buffalo: Demand and supply fair; trend steady; $53.50, Boston.

LINSEED OIL MEAL

Boston: Demand fair; supply ample; $75.

Kansas City: Demand slow; trend easy; supply adequate; solvent process, $55@55.50; old process, $65@65.50, Minneapolis.

Chicago: Demand and supply fair; trend steady to easier; Minneapolis basis, solvent, $56; expeller, $66.

San Francisco: Demand fair; supply ample; $73.

Louisville: Demand slow; supply light; trend easy; old process, $84, sacked, down 50¢ ton; new process, $74.50, sacked, down 50¢ ton.

Philadelphia: Demand fair; supply light; trend unsettled; 34%, $76, nominal.

Wichita: Demand fair; supply sufficient; 34%, $78, sacked.

New Orleans: Demand slow; trend easy; supply ample; $74.70, bulk; $79@79.70, sacked.

Omaha: Demand slow; trend easy; supply ample; 34% solvent, $61.30, bulk; 32% old process, $71.30, Omaha basis.

Portland: Demand weak; supply ample; trend moderate; $86.35, sacked.

Cincinnati: Demand poor; trend steady; supply adequate; new process, $56; old process, $66, Minneapolis.

Ft. Worth: Demand slow; supply sufficient; 34% protein, solvent $73, rail.

Minneapolis: Supplies ample; demand dipping further; solvent $55.50@56, nearby, down 50¢@$1 from last week; expeller, $65.50.

Denver: Demand fair; trend steady; supply ample; $71.

MEAT AND BONE MEAL

Denver: Demand and supply good; trend steady; $75.

Buffalo: Demand just fair; trend lower; supply ample; 50% meat scraps, $77.50 bulk; $82.50, sacked.

St. Paul: Demand slow; supply adequate; price slide continues, off $1@4 from last week at $76@80.

New York: Demand good; trend steady; supply satisfactory; 50%, $75; 55%, $82.50, New York.

New Orleans: Demand slow; trend easy; supply ample; $85@90, sacked.

Boston: Demand good; supply steady; $1.30 per protein unit; converted 50%, $77.50.

San Francisco: Demand fair; supply ample; $1.50 per unit of protein.

Chicago: Demand quiet; trend lower; supply fair; 50% protein, 100 lb. bags, $82.50.

Louisville: Demand fair; trend easy; supply normal; $80@85, sacked.

Wichita: Demand good; supply sufficient; 50%, $87.50, sacked, f.o.b. plant; 55%, no quotations, no offerings.

Omaha: Demand fair; trend improving; supply ample; $80, bulk.

St. Louis: Demand slow; trend lower; supply ample; $78.

Kansas City: Demand slow; trend easy; supply ample; 50%, $75.

Cincinnati: Demand better; trend steady; supply fair; 50% meat and bone scraps, $76, Cincinnati.

Portland: Demand good; trend strong; supply ample; $84.50, bulk, to $87.50, sacked.

Ft. Worth: Demand fair; supply medium; meat and bone 50%, $80@82, f.o.b. Ft. Worth.

Seattle: Demand good; trend firm; supply limited; 50% protein, $85 ex whse., sacked.

Los Angeles: Demand and trend steady; supply adequate; 50% protein, $1.65 unit.

MILLFEED

Minneapolis: Production up, demand weak, market still slipping; bran off $3 at $38@39, sacked; sacked midds. down $2@2.50 from last week to $35@36, bulk $30; red dog steady to off $1 at $41, sacked.

Kansas City: Demand fair; trend easy; supply ample; sacked bran, $31.50@32; bulk bran, $26@26.50; sacked shorts, $31@31.50; bulk shorts, $26.50@27; bulk middlings, $26@26.50.

Wichita: Demand improved, but only fair; supply ample; basis Kansas City: Bran $35.25@35.75, shorts $35@35.50, sacked; bran down $1 and shorts $2.25, compared with the preceding week.

Ft. Worth: Demand fair; supply adequate; bran $38@38.50, burlaps $43.50@44; gray shorts $38.50@39, burlaps $43@43.50; bulk middlings $38@38.50, delivered Texas common points; 50¢@$1 lower on bulk bran, unchanged to 50¢ higher on sacked bran, $1.50@2 lower on bulk shorts, unchanged to 50¢ lower on sacked shorts, 50¢@$1 lower on midds., compared with previous week.

Chicago: Some demand for nearby but little or none for deferred shipment; both bran and midds. off fully $4 from April 20 and red dog off about $2.50 ton; carlots, prompt shipment: Bran $31@31.50; midds. $31.50@32.50; red dog $41.50.

St. Louis: Demand slow; trend easy; supply ample; sacked bran $38, bulk bran $31; sacked shorts $38, bulk shorts $32; middlings $31.50.

Cincinnati: Demand poor; trend lower; supply adequate; bran and middlings, $40.

Omaha: Demand slow; trend easy; supply ample; sacked bran, $35.50; sacked gray shorts, $35.50; bulk standard midds., $28.50, all Omaha basis.

Boston: Demand very slow; supply ample; bran, $45; middlings, $45.50.

Buffalo: Sales of bran and middlings far and few between, all transactions at bid prices; quotations off, bulk bran acted feebie and middlings showed some signs of bottoming out; local levels at or under western competition; sacked differential on bran and middlings hold steady at $6.50 and remained at $4.50 on red dog; bulk and sacked bran declined $4.50; bulk and sacked middlings were down $3.50; red dog prices off $4; quotations April 27: Bulk bran $33@33.50, sacked $39.50@41; bulk middlings $34.50@35.50, sacked $41@42; bulk red dog $43@44.50, sacked $47.50@49.

Philadelphia: Demand slow; supply fair; trend unsettled; bran, $44; standard middlings, $44.50; red dog $49.

New Orleans: Demand good; trend easy; supply ample; sacked bran, $51@52; bulk bran, $46@46.75; sacked shorts, $51@52; bulk shorts, $47@47.75; bulk midds., $46.50@46.75.

Memphis: Demand fair; trend weak; supply ample; wheat bran, $36.70, bulk; gray shorts, $37.70, bulk; standard midds., $36.70, bulk.

Louisville: Demand slow; trend weak; supply good; bran, $46.60, sacked; mixed feed, $47, sacked; shorts, $47.85, sacked.

Seattle: Demand fair; trend steady; supply limited; $42, delivered common transit points, carlots.

Portland: Demand good; trend steady; supply scarce; $41@42.

Ogden: Supply good. To Utah and Idaho: Red bran and millrun, $39; midds., $44. To Denver: Red bran and millrun, $46; midds., $51. To California: Red bran and millrun, $46.50; midds., $51.50, f.o.b. San Francisco and Los Angeles.

Denver: Demand good; trend strong; supply tight; shorts, $39.75; bran, $40; millrun, $40.

San Francisco: Demand slow; supply ample; millfeed, $49; red bran, $54.

Los Angeles: Standard millrun, $47.50@48.50, slower demand, weaker trend, ample offerings; red bran, $48@49, slower demand, weaker trend, ample supplies.

MOLASSES

Cincinnati: Demand poor; trend steady; supply adequate; 5¼¢ gal., New Orleans.

New Orleans: Demand fair; trend easy; supply good; 8½@9¢ gal. tank cars and trucks; 600-lb. customers' drums $5.92.

Kansas City: Demand slow; trend steady; supply ample; blackstrap 8¼¢ gal., f.o.b. tank car New Orleans.

Memphis: Demand fair to good; trend weak; supply ample; blackstrap, 8¼¢ gal., tank car, f.o.b. New Orleans, and $23.74 ton delivered Memphis, truck.

Denver: Demand and supply good; trend strong; cane, $35.

New York: Demand fair; trend steady; supply good; 14¢ gal. Albany; 13½¢ Baltimore and New York; $28, f.o.b. Buffalo.

Buffalo: Demand and supply good; trend steady; 14¢ gal., f.o.b. Albany.

Minneapolis: Demand slow; supply plentiful; $27.50, tank truck, delivered.

San Francisco: Demand and supply good; $19.75 ton, f.o.b. cars, Richmond, Cal.

Louisville: Demand slow; trend weak; supply normal; 8¼¢ gal., tank car lots, f.o.b. Gulf ports.

Boston: Demand steady; supply ample; 14¢ gal. in tank cars.

St. Louis: Demand poor; trend steady; supply ample; 8¼¢ gal., tank car, New Orleans.

Ft. Worth: Demand slow; supply sufficient; blackstrap 10¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $23.80, seller's market price on date of shipment.

Seattle: Demand fair; trend easy; supply good; $19.75, f.o.b. Seattle tank truck lots.

Milwaukee: Demand fair; supply ample; trend unchanged; blackstrap, 8¾¢ gal., f.o.b. New Orleans.

Los Angeles: Demand good; trend steady; supply ample; $19.50, f.o.b. tank cars; $19.75, f.o.b. tank trucks.

OAT PRODUCTS

Memphis: Demand poor; trend weak; supply ample; 3½% protein, reground oat feed, $31.75, bulk.

Minneapolis: Sacked — Feeding rolled steady at $81; feeding oatmeal $68, off $2; pulverized up 50¢@$2 to $47; crimped up $1.50 to $62.50; reground oat feed firm at $27.

Louisville: Demand slow; trend steady; supply ample; reground $33.80; rolled oats $84.80; feeding oatmeal $80.30; crimped white oats $67.80; pulverized white oats $63.80; all sacked.

Boston: Demand and supply fair; white pulverized, sacked, $68.50; reground oat feed, sacked, $36.50; Canadian sacked, $33.

Chicago: Demand and supply fair; trend firm; reground oat feed, $22.50; No. 1 fine ground feeding oatmeal, $74; feeding rolled oats, $78@79.

Philadelphia: Pulverized whites, demand slow, supply fair $52.50; domestic, demand slow, supply light, $32.30; Canadian demand slow, supply light, $34.50.

Portland: Demand fair; trend steady; supply ample; $71, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; pulverized white oats, $49@54.

Seattle: Demand good; trend firm; supply fair; oat feed $59, delivered truck lots, 2¾ lb. or better.

Los Angeles: Demand fair; supply limited; trend unchanged; local production, pulverized, $69, sacked.

Ft. Worth: Demand slow; supply sufficient; oat millfeed $46.70, reground $32.70, sacked, new jutes.

POULTRY BY-PRODUCTS

Boston: Demand fair; supply tight; $71, f.o.b. shipping points.

Salisbury, Md.: Demand good; supply limited; meal, $86, f.o.b.

Los Angeles: Demand good; trend firm; supply tight; $1.45 unit of protein, sacked.

Ft. Worth: Demand good; supply scarce; 55% protein $87.50 sacked, f.o.b. north Texas plants.

RICE BY-PRODUCTS

San Francisco: Demand good; supply ample; bran, $45, sacked; polish, $49, sacked.

Los Angeles: Demand slow; supply limited; trend unchanged; California production, high fat content, bran, $52, sacked.

Ft. Worth: Demand fair; supply limited; rice bran, $31@32, f.o.b. south Texas rice mills; hulls, $3.50, sacked, f.o.b. mills.

SCREENINGS

Chicago: Demand fair; trend firm; supply ample; ground grain screenings, $39 nominal; Canadian, $31.50.

Buffalo: Demand fair; trend lower; supply good; ground, sacked, $37.50, New York, lake and rail; unground, bulk, $32.

Minneapolis: Tight position prior to opening of Seaway navigation; Canadian: Short supply, little traded, $25, Duluth; domestics: Supply tight, trading at high end of range, lights $13@23, mediums $24@33, heavies $34@43; flax screenings, basis 14%, no trade, $45, nominal.

Cincinnati: Demand fair; trend steady; supply adequate; unground grain screenings, $25.50@26.

Ft. Worth: Demand fair; supply limited; ground mixed grain, $27@28, nominal.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

(Sacked)

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUM

Ft. Worth: Demand fair; supply sufficient; No. 2 yellow milo, $2.09@2.11 per cwt., delivered Texas common points.

Seattle: Demand and supply good; trend easy; milo $46, delivered, carlots.

Los Angeles: Demand and trend steady; supply ample; milo, $2.22½ cwt.

Ogden: Supply good; $42@43 ton.

SOYBEAN OIL MEAL

New Orleans: Demand slow; trend easy; supply ample; $69@69.50, sacked.

Cincinnati: Demand fair; trend higher; supply adequate; $56.50, Decatur.

Memphis: Demand slow; trend steady; supply plentiful; prime 44% solvent, $57, bulk, f.o.b. Memphis.

Seattle: Demand good; trend easy; supply ample; $76, delivered carlots.

Milwaukee: Demand, trend and supply fair; $55, bulk, Decatur.

Los Angeles: Demand slow; trend weaker; supply ample; $74.90@75.40.

Minneapolis: Demand good, supply plentiful, cash trade firm, but options weak; market dipped early in week but returned to last week's level April 28; 44%, steady at $48, Decatur; 50% steady to slightly stronger, $53.50, Decatur.

Denver: Demand good; trend steady; supply fair; 44%, $70.

Boston: Demand fair; supply ample; 44%, $51.50; 50%, $55.50, both f.o.b. Decatur.

Philadelphia: Demand and supply fair; trend unsettled; 44%, $52 bulk, Decatur.

Kansas City: Demand poor; supply ample; trend easy; 44% solvent process, $51.50@52, Decatur.

Chicago: Price cut continues, offerings not pressing, demand only so-so; Decatur basis: 44% protein, unrestricted billing $55.50@56, and eastern trunk line $52; 50% protein, unrestricted, $60.50, and eastern trunk line $56.

Louisville: Demand slow; trend steady; supply normal; $67.70, sacked.

Ogden: Supply good; 44% protein, $78@79 (50% protein, $83@84).

Omaha: Demand slow; trend easy; supply ample; 44%, $57.60, bulk, delivered Omaha.

Portland: Demand fair; trend weak; supply ample; $73.80@74.40.

Wichita: Demand slow; supply ample; 44%, $67; 50%, $73, sacked; 44%, $64; 50%, $70, bulk, f.o.b. Wichita.

St. Louis: Demand slow; trend easy; supply ample; 44%, $67.

Ft. Worth: Demand slow; supply sufficient; 44%, $62.50 immediate-May, $65.60 June-August; 50% $73 May, $75 June-August.

TANKAGE

Kansas City: Demand slow; trend easy; supply ample; 60% digester, $75.

Louisville: Demand fair; trend steady; supply good; 60%, $85@90, sacked.

Chicago: Demand slow; trend easier; supply ample; 60% protein, 100 lb. bags, $85.

St. Paul: Demand slow, supply adequate, downward trend continues, off $4@5 from last week at $75@78.

Wichita: Demand good; supply sufficient; 60%, $87.50, sacked, f.o.b. plant.

Cincinnati: Demand fair; trend steady; supply short; 60% digester, $80, Cincinnati.

New Orleans: Demand dull; trend steady; supply good; $85@90, sacked.

Omaha: Demand fair; trend improving; supply ample; $80, bulk.

St. Louis: Demand slow; trend lower; supply ample; $78.

Ft. Worth: Demand fair; supply limited; 60% digester, $86, sacked, Ft. Worth.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; supply very tight; 5½¢ lb., f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55. Freight allowed to destination.

WHEAT GERM MEAL

Minneapolis: Demand fair, supply tight, market firm at $56, jutes.

Buffalo: Demand fair; trend lower; supply adequate; commercial grade, $61, sacked, f.o.b. Buffalo.

New Orleans: Demand fair; trend easy; supply ample; $60@62 cottons.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

(Sacked)

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand extremely good; supply very tight; 5½¢ lb., f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100 lb. drums $1.50; in 25 lb. drums $1.55, freight allowed to destination.

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Use FEEDSTUFFS Want Ads for RESULTS

EDEMA

(Continued from page 1)

of fat added to poultry feeds and halted the disease within six months. But why these particular lots caused the disease remained a mystery. There has been ample evidence that fat itself was in no way related to the disease.

Scientists at university, government and industrial research centers began chemical studies to break down the toxic fat, removing one by one all known substances from the fat in order to isolate and identify the unknown substance responsible for the disease. Merck was asked to join the search because of its experience in isolation of vitamins and other factors from natural sources or materials.

The success of the Merck effort is reported in the current issue of the Journal of the American Chemical Society by Dr. Robert E. Harman, George E. Davis, Dr. Walther H. Ott, Dr. Norman G. Brink and Dr. Frederick A. Kuehl, Jr., all scientists at the Merck Sharp & Dohme Research Laboratories Division of Merck & Co., Inc.

Isolation of the pure substance opens the way for determining exactly what it is and how it gets into fat, the scientists said. The substance is called "chick edema factor" because the condition it causes is characterized by an accumulation of fluid throughout the body and by injury to the heart, liver and kidney of the chick.

Fatal at 1 p.p.m.

Merck studies show it is fatal to chicks at levels of about 1 part per million, comparable to about one-quarter of a teaspoonful in a ton of feed.

It is expected several tons of toxic fat will be needed to obtain a tenth of a gram of the substance for further study. The approximately one-half milligram obtained to date by the Merck chemists from many hundreds of pounds of toxic fat is less than one-fifty-thousandth of an ounce.

Dr. Brink, one of the Merck team which discovered vitamin B_{12}, compared the chemical difficulties of isolating the chick edema factor with those of isolating vitamin B_{12} from liver. "I doubt if we could have done it in two years," he said, "without our previous experience with vitamins, hormones and antibiotics."

"The feed industry has been successful in preventing further instances of the disease, but present methods of control are cumbersome, expensive, and time-consuming," a Merck spokesman said. "The only way to ensure that fat is safe to add to feed is to give it to chicks and then wait several weeks to see that they do not come down with the disease.

"Now that the Merck scientists have isolated the chick edema factor, it is hoped that the continuing chemical studies will make it possible to avoid introduction of the toxic factor into the fat and to develop faster and better means of testing for its presence."

KANSAS

(Continued from page 1)

Nearly 600 dealers were present at the Kansas association's annual meeting to hear a program which dealt with various feed and grain problems; among them, panel discussions of current negotiations on new government storage rates, fertilizer selling techniques and the latest nutritional developments in feeds.

The subject of farm chemical use was first discussed by Sam D. Fine, director of the Kansas City district of the Food & Drug Administration, who said that FDA is not opposed to the use of chemicals in agriculture. "We could not have modern agriculture as we know it without the use of chemicals," Mr. Fine said, "nor could we have our high standards of sanitation or modern convenience foods.

Must Follow Labels

"Our concern in the FDA is that the chemicals be used in such a way that we can all enjoy the benefits and none be harmed. Some of the newer chemicals are very potent and there is a thin line between safe use and grave misuse. Serious consequences can occur — and have occurred in instances in the past — through ignorance of the label directions of the product or through deliberate misuse.

"Our agency strongly recommends that farmers, grainmen, homeowners and all others who use these potent chemicals use the product at the time recommended, in the amounts recommended and in the method recommended," he added.

This plea for careful observance of recommendations also was echoed by Mr. Cherbonnier in his talk. The feed industry has a responsibility to make it easy for the feeder to follow the approved practices with feeds carrying chemical additives, he said.

Nutrition Research

Some of the recent developments in animal nutrition research were discussed by Jerry Sotola, Armour & Co., Chicago, who recently completed an extensive trip through western cattle feeding areas. He said that hay cubing is aiding many feeders in quicker fattening of steers, and that in Montana, there has been very successful use of a fattening ration using high levels of barley and protein with no roughage. "The cattleman this year will have to make his profits on feeding efficiency, not on margins over cost of feeder stock," he said.

Mr. Sotola said that recent research has shown that when antibiotics are fed to animals, a thinning of the walls of the small intestine follows, enabling the animal to absorb its food more quickly. Mr. Sotola also pointed out that in many, many tests, Armour laboratories have never found any traces of stilbestrol in beef.

Industry Trends

Newer developments in packing house operations have led to major changes in trends in that industry, the speaker said. Packers have found it necessary to shut down old plants in big cities where wage rates are around $2.85 per hour and build smaller units highly automatic in machinery and equipment which are located close to a source of supply in areas where farm wages average about 89¢ per hour, he said.

The packing industry for years was regarded as highly efficient, Mr. Sotola said, and so the larger packers sat back and prided themselves on this reputation. The result was that "the procession passed us by," he said, and now the industry is faced with a major overhaul job. He warned that the same thing can happen in the feed industry to feed manufacturers who become complacent.

Mr. Cherbonnier said that everyone agrees that the farmer of the future will be a bigger operator, better trained and better equipped. Who is going to train the feed dealer for the day when he will need the best knowledge and skill to serve his farmer customer?, he asked. The feed man of the '60's will have to be better and, like farmers, there will be fewer feed men doing a much larger business with outside sales and servicemen on their payroll, he predicted.

Grain Bank Discussed

The grain bank system of feed selling also came in for considerable discussion. Mr. Cherbonnier called it a type of service that will expand greatly in the '60's. He said that the system saves the feeder time and labor and improves nutritional quality of feeds, while saving storage space on the farm. The speaker emphasized that a major factor in successful operation of a grain bank is a clear understanding between the farmer and the dealer at the time the program starts.

The grain bank is "not all roses," as the next speaker pointed out. There are some legal problems in Kansas. Georgell Douglass, state warehouse examiner for the Kansas State Grain Inspection & Weighing Department, said that his department does not want to throw any roadblocks in the way of any dealer who wants to operate a grain bank, but he pointed out that many grain bank practices are in violation of the Kansas warehouse law. On some of these points, the warehouse department has asked the attorney general for a ruling, and Mr. Douglass said that special legislation should be enacted in Kansas to take care of grain bank operations.

If the grain elevator operator who has licensed warehouse storage and also operates a grain bank keeps special accounts for both, so that the records are clear for the state examiner, there can be no problem involved, Mr. Douglass said, but many do not keep such records. In some cases, he thinks grain bank operations should be subject to the state feed tax. He pointed out that state law permits taking grain on open storage for not to exceed 60 days. After that time, the elevator man must issue a warehouse receipt for the grain or else obtain a written statement from the owner of the grain that such receipt is not desired.

To what extent does the warehouseman's bond cover a grain bank operation?, Mr. Douglass asked. The attorney general is seeking the answer, he said. Overdrafts of farmer-owned grain and other similar loose accounting situations cannot be allowed to exist in a state bonded warehouse, he pointed out.

Mr. Douglass said that there were 1,400 licensed grain elevators in Kansas with a capacity of 572 million bu., and there is an additional 178 million bu. in federally licensed warehouses, making a total of 750 million bu. of licensed and bonded space in Kansas.

New safety regulations for fumigation of grain in Kansas were brought before the convention by Harold L. Smith, Kansas commissioner of labor, who urged all dealers and fumigators to co-operate in improving safety in handling their materials. There have been some fatal accidents in Kansas in the past two years.

Storage Program

A large part of the program was devoted to a discussion of the current government storage program and the pending writing of a new Uniform Grain Storage Agreement by the Commodity Credit Corp. Raymond J. Pollock, director of the U.S. Department of Agriculture's grain division, discussed the problems involved in the contract, and there was a panel of storage industry people who presented industry reactions to the federal proposals. They were S. Dean Evans, Evans Grain Co., Salina; L. A. Laybourn, Simpson Laybourn, Miller & Stark, Salina, and Alvin E. Oliver, executive vice president, Grain & Feed Dealers National Assn., Washington, D.C. They talked about the meeting of the 18-man industry committee with CCC officials April 28 in Washington.

Area loan grain take-over problems were outlined by Donald E. Smith, director of the Commodity Stabilization Service at Kansas City, and Wendell Beecraft, Kansas administrative officer of the Kansas agricultural stabilization and conservation committee.

Officers Elected

Edward D. Romain, The Pillsbury Co., Wichita, was elected president of the Kansas association, after serving the past year as vice president. Charles R. Coffey, Coffey Grain Co., Brewster, was named vice president. Orris E. Case, Hutchinson, continues as secretary-treasurer.

Directors elected for two-year terms were: S. Dean Evans, Sr., Evans Grain Co., Salina; H. J. Gudenkauf, Frankfort Grain Co., Frankfort; J. H. Voss, Voss Grain & Seed Co., Downs; Royal R. Cox, Cox Grain Co., Iola, and Steve E. Aduddell, Ham Grain Co., Coffeyville. Holdover directors were Ellis K. Cave, Dodge City Terminal Elevator Co., Dodge City; Victor S. Davis, Western Terminal Elevator Co., Hutchinson; Robert F. Gantz, D. E. Bondurant Grain Co., Ness City, and David E. McKee, CGF Grain Co., Topeka, who is an ex-officio director as the retiring president of the association.

Dates of district meetings were announced as follows: Atchison, Bellevue Country Club, May 16; Iola Kelley Hotel, May 18; Colby, Cooper Hotel, June 4, and Beloit, Porter Hotel, June 11.

EGG PROMOTION

(Continued from page 8)

poultrymen to: (1) Set up FPI performance goals, (2) keep complete records to check progress toward these goals and (3) determine any inefficiencies that may exist in flock operations."

An educational, full-color, 12-minute, sound-strip film has been produced to explain the Hess & Clark plan to egg producers. This film will be made available by June 1 to anyone in the poultry and feed industry for showings to farmer groups, Mr. Eshelman said. Copies will also be made available through a film library for circulation to 4-H groups, Vo-Ag classes, FFA clubs, etc.

Tied-in with Hess & Clark's FPI promotion will be the recommendation of continuous low-level nf-180 feeding to combat "constant disease drag."

The campaign will be introduced to the feed industry with a 16-page insert in the May 7 issue of Feedstuffs. Later, the Hess & Clark FPI plan will be introduced to egg producers through poultry publications and radio stations.

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DELAWARE FIRM

(Continued from page 1)

fidence that this area can compete favorably with any other broiler-producing region for the nation's poultry markets. "The new mill," he said, "will accomplish a reduction in feed cost and put this company in a much more competitive position."

Although there are four other large feed mills in Delaware, officials said, this one will make Townsends, Inc., the largest vertically-integrated poultry operation. Other parts of the coordinated works are farms, laying flocks, a small soybean processing plant, a poultry dressing plant and a hatchery.

The new mill's output will feed the 14 million broilers Townsends raise each year on the Delmarva Peninsula.

The heart of the new mill, scheduled for operation in nine months, will be a Richardson automatic batching punch card system. This controls the composition of the finished feed and also keeps a constant inventory on the ingredients in the 12 Butler square bins, each with almost 90 tons capacity. Feed formulas will be key-punched into cards that are fed into the control unit, which then will take over the job of selecting, weighing, mixing and distributing the product without any manual labor.

The company will receive 98% of the raw materials in bulk form.

Two 3-ton mixers will be installed, each capable of blending the ingredients in four-minute cycles. There will be three 100 h.p. and two 60 h.p. pellet mills with crumblers that will turn out 50 tons of feed an hour. A fat-additive system will blend measured amounts of vegetable and animal fats into the pellets before they go on to the storage bins that will be able to hold 350 tons.

Sprout, Waldron & Co. of Muncy, Pa. is prime contractor for design, engineering and installation of equipment, with local contractors on subcontract.

Sen. Townsend said that Armel W. Long, manager of the company's present feed mill, will manage the new one.

10 LEADERS

(Continued from page 1)

new terms on the board in 1960. They are: Ogden P. Confer, Hubbard Milling Co., Mankato, Minn.; Guy L. Cooper, The O. A. Cooper Co., Humboldt, Neb.; C. S. Langen, Moorman Manufacturing Co., Quincy, Ill.; Nelson Polsby, The Yantic Grain & Products Co., Norwich, Conn.; Charles H. Riley, Cooperative G.L.F. Exchange, Ithaca, N.Y.; C. W. Tilson, Central Carolina Farmers Exchange, Durham, N.C.; R. E. Wendland, Wendland's Farm Products, Inc., Temple, Texas, and, Eugene E. Woolley, General Mills, Inc., Minneapolis.

Two members serving their second term are H. Langdon Robinson, Faultless Milling Co., Springfield, Ill., and Allen Schreiber, Schreiber Mills, Inc., St. Joseph, Mo.

Mr. Confer is president of Hubbard Milling Co. He has served with the firm 14 years and formerly held the positions of purchasing agent, manager of the feed division and vice president. Mr. Confer attended Westminster College in Fulton, Mo., for one year, and then completed his collegiate studies at the University of Minnesota, obtaining a B.B.A. degree. He has been active in regional feed association activities and is currently vice president and a director of the Northwest Feed Manufacturers Assn.

Mr. Cooper is president of the O. A. Cooper Co. and has been active in its management for the past 32 years. In addition, he worked with the firm on a part-time basis for another 12 years. Prior to his present position, he was manager of the feed department and then vice president. Mr. Cooper is a graduate of the University of Nebraska and obtained an A.B. degree. He has been active in feed association affairs, is a director of the Midwest Feed Manufacturers Assn. and a past president of that group. He is also a director of the University of Nebraska Foundation, first vice president of Consumers Public Power District and a 4th degree Knight of Columbus.

With Firm 39 Years

Mr. Langen is advertising and sales promotion manager of the Moorman Manufacturing Co. and has been with the firm 39 years. Previously, he was head of the accounting department, order department and market research department, as well as advertising manager. Mr. Langen has also worked for the Burlington Railroad and Armour & Co. Mr. Langen attended both Gem City Business College at Quincy, Ill., and Quincy College. At the present time, Mr. Langen is vice president and member of the board of directors of the National Feed Ingredients Assn.

Mr. Polsby is treasurer of the Yantic Grain & Products Co. and has been employed by the firm 40 years. Previously, he was a salesman with Yantic Grain. Mr. Polsby has been most active in feed industry and civic affairs. He was a member of both the New England Feed Manufacturers Assn. and credit group; is a member of the Boston Grain & Flour Exchange; a member of the board of incorporators of the Norwich Savings Society; a member of the advisory board of the Uncas Merchants Branch of the Hartford National Bank & Trust Co.; a member of the executive board of the William H. Backus Hospital, and a member of the executive committee of the Red Cross and YMCA.

Mr. Riley is director of wholesale for Cooperative G.L.F. Exchange, Inc., and has been with G.L.F. for 22 years. Mr. Riley graduated from Cornell University in 1938 with a B.S. degree. He served with G.L.F. as a store manager for five years, district manager for the next three years, supervisor of personnel and facilities for stores for five years and then area distribution manager for the five years prior to his present appointment in 1958.

Mr. Robinson, president and general manager of Faultless Milling Co., has served in this capacity for the past 11 years. Mr. Robinson completed his undergraduate work at Dartmouth College and obtained a bachelor of science degree. His postgraduate work was at Cambridge University in England. Thereafter, he served with the U.S. Army and retired with the rank of colonel. His previous business affiliation to Faultless was with the Henson Robinson Co., where he served as vice president.

Mr. Schreiber is president of Schreier Mills. He has been with the company 19 years and was formerly in maintenance, production and sales work. Mr. Schreiber is a graduate of the University of Missouri and has been very active in regional and state feed association work.

Firm's General Manager

Mr. Tilson is general manager of the Central Carolina Farmers Exchange, Inc., and has served in that capacity for the past 30 years. Mr. Tilson helped organize the cooperative in 1930 and, for the previous six years, had served as a county agricultural agent in the northern part of the state. He attended Mars Hill Junior College and North Carolina State College. Mr. Tilson received a B.S. degree in animal husbandry and marketing at the latter school. North Carolina State College also awarded an honorary degree of doctor of humanities to him in 1957. Mr. Tilson is a past director of American Feed Manufacturers Assn., a director of the United Fund of Durham, director of the Durham Bank & Trust Co., chairman of the Area Development Board, member of the advisory board to the dean of agriculture, North Carolina State College, and president of the North Carolina State College Foundation.

Mr. Wendland is president of Wendland's Farm Products, Inc., (formerly the Wendland Grain Co.) and has held that position since the company was organized in 1922. Mr. Wendland has been most active in feed and grain industry organizational work since his graduation from the University of Texas. He is a past president of the Texas Feed Manufacturers Assn., a past president of the Texas Grain & Feed Dealers Assn. and a past member of the board of directors of the Grain & Feed Dealers National Assn., the Midwest Feed Manufacturers Assn. and the American Feed Manufacturers Assn. In addition, Mr. Wendland has been most active in many civic and business organizations in Temple, Texas.

Mr. Woolley, general manager of the feed division, General Mills, Inc., has spent 18 years with the firm. Previously, he served as plant manager at Belmond, director of production and engineering in the chemical division, general plant superintendent for the flour division, plant manager at Buffalo, and director of production for General Mills' flour division. Mr. Woolley is a graduate of Kansas State University with a B.S. degree. He also attended the Harvard Graduate School of Business Administration and was on active duty with the U.S. Navy. In addition to his work with AFMA, Mr. Woolley is active in the Association of Operative Millers and the Northwest Feed Manufacturers Assn.

GRAIN TRADE

(Continued from page 1)

the department," the industry representatives said in a brief statement.

"On the one hand it proposes terms and conditions in a new 1960-61 contract which increase the responsibilities of warehousemen by approximately 25%. It couples this with a reduction in rates of from 12 to 50% for services of conditioning, handling and storage of CCC grain and oilseeds.

"This comes at a time of increasing costs and means that the rates will not be fair and compensatory for the overwhelming majority of some 11,000 warehouses.

"We notified the department of terms and conditions we believe would be acceptable to the industry, but they were rejected by the department. We have therefore concluded that the department will proceed by edict, leaving us no alternative except to withdraw in protest.

"It is clear that the negotiations as they have evolved in the present political atmosphere preclude any opportunity to settle the matter in a mutually acceptable manner.

"This we, of course, regret, and withdrawal in protest is the only alternative open to us."

The statement was signed by all 18 members of the committee.

Ingredient Association Board to Meet

DES MOINES—A meeting of the board of directors of the National Feed Ingredients Assn. has been called for May 9 in the Tally-Ho Room of the Congress Hotel in Chicago, according to an announcement from the association office in Des Moines.

The meeting, which will be held in connection with the American Feed Manufacturers Assn. convention May 9-11, will begin with a noon luncheon.

POULTRYMAN DIES

SHELBY, N.C.—Poultryman Fred Ropp, Shelby, was killed when his private plane crashed near the local airport while he was giving instructions on flying to a college student, Mitchell Brittain, who was injured.

CHEMICAL SAFETY

(Continued from page 1)

tive to the enormous benefits realized."

Dr. Byerly used a number of examples to illustrate how insufficient research has created confusion in the control of chemical use. And he questioned, "Until we know the metabolic fate of every chemical we use and of all of their metabolites, how can we be sure that we can meet zero tolerances? Until we have quick, specific, reliable, as well as sensitive methods for analysis for each of these chemicals and their metabolites, how can we be sure that prohibited uses have not resulted in illegal residues?"

"Must Speed Up Research"

He said research can further increase productive efficiency through appropriate use of chemicals, but to do this, scientific investigations must be founded on basic research to find specific substances affecting specific metabolic processes.

"Above all else, we must speed up our research on the metabolism of crop plants and livestock species, on their parasites, predators and competing species and on the metabolic interrelationships which determine specific host-parasite and predator-prey relationships," Dr. Byerly observed.

He asserted that it is not enough to have adequate research information on the safety of a chemical in itself. In addition, sufficient information must be developed relative to the formulations used under the conditions of use.

Additive Study Urged

More research to determine the conditions under which drugs and feed additives improve livestock production and an assessment of their value were called for by Ned R. Ellis, also of USDA's Agricultural Research Service.

"Although some use of drugs and additives is safe and advantageous," he related, "they should not be used unnecessarily. Data supporting their actual value does not justify indiscriminate use."

Robert S. Roe, director, bureau of biological and physical sciences, Food and Drug Administration, outlined the responsibilities of FDA with respect to chemicals used in agriculture but he did not get into the details of the administration of controls as set forth by the Delaney clause of the food additives amendment.

Industrial Contamination

Industrial contamination of feed, although usually of a local nature, continues to present a problem to the livestock industry, according to Dr. Aubrey M. Lee, USDA veterinarian.

He said that at this time no industrial contamination of livestock feed is known to be causing loss of livestock over any wide area. However, he added, more must be learned about industrial processes, gases, wastes and additives in order to prevent their incorporation into feed.

Dr. Rudolph D. Radeleff, leader of investigations on pesticide toxicity to livestock for USDA's Agricultural Research Service, said modern pesticides have been and are being used on animals and plants with "complete safety" to livestock and with safety to foods derived from livestock. He said new pesticides must be proven effective and safe to animals and humans before USDA will register them for interstate shipment.

CO-OP MANAGER NAMED

BENTONVILLE, ARK.—George Melbourn, former manager of a processing plant at Arcadia, La., has been named manager of the Arkansas Poultry Cooperative at Bentonville, it was announced. Mr. Melbourn succeeds J. O. Kumpe, who resigned after serving for 14 years as manager of the facility.

ADDITIVES

(Continued from page 6)

due studies with cattle that the synthetic estrogen diethylstilbestrol would produce a growth effect, it is obvious that the control of animal growth is still in its infancy," Dr. Andrews observed.

Since then, Purdue studies have shown that alfalfa, clover, other leguminous plants, silage or hay might have female-like hormone activity.

"We have now studied more than 50 strains of alfalfa," he said, "and in cooperation with the agronomy department here we are attempting to develop alfalfa varieties with high and low hormonal activity.

"It is entirely possible that feeding value of alfalfa may be changed by altering its hormone content. This, and other hormone projects will be carried on at Purdue in an attempt to increase the efficiency of plant and animal agriculture."

ADDITIVES—Following is a condensation of Dr. Beeson's discussion of the present status of several feed additives:

Enzymes—Dr. Beeson described as "variable and inconclusive" the results reported to date on the use of enzymes as a feed additive for beef cattle. "Apparently the nature of the ingredients in the ration has a marked influence on the response of cattle to enzyme supplementation," he said.

Dr. Beeson reported that several tests at Purdue with a number of enzyme preparations (Agrozyme, Diazyme, HT-550F and Zymo-Pabst) "have shown that the feeding of these enzymes to steers in drylot on a fattening ration of low-moisture corn (full-fed), Supplement A and limited corn silage (17 lb.) had no significant effect on gain, feed efficiency or carcass quality." In contrast to these results are those obtained at Iowa State University, where it was shown that cattle respond to enzyme supplementation on low-moisture corn (14% or less), "but there was no effect on gain or feed efficiency when Agrozyme was fed with corn containing 19-30% moisture."

Dr. Beeson concluded his enzyme discussion this way: "It is quite obvious that the true effect of enzymes on the ruminant is in a state of uncertainty. On account of this fact, more research needs to be conducted, especially on a fundamental basis, to determine the true function of enzymes in ruminant metabolism."

Lysine-Amino Acids—Amino acid supplementation, the newest approach to improving the nutritional value of cattle diets, "opens up a new field of research for critical evaluation," Dr. Beeson said.

Up until recently it had been assumed that amino acids were not a limiting factor in ruminant diets, Dr. Beeson related, but interest in amino acid supplementation has been aroused by growth response to such supplementation in cattle tests.

He reported that Chas. Pfizer & Co. researchers found that feeding 10 gm. of lysine per steer daily would increase daily gain 15% on a ration containing 11.5% crude protein. "There was no growth response to lysine supplementation on a ration containing 8.6% protein," he said, "but lysine improved feed efficiency at both levels of protein."

Bentley and co-workers at Ohio State University, he said, have shown that rumen microorganisms grown on a purified medium in vitro with ample nitrogen will respond to additions of the amino acids valine, proline, leucine and isoleucine.

Also, research in progress at Purdue has indicated that the fortification of high urea supplements with amino acids may improve gain and feed efficiency. "This may be the key to the utilization of larger amounts of urea in cattle diets," Dr. Beeson commented.

Antibiotics—The Purdue scientist said that to date a majority of the more than 130 reported experiments which have tested the effect of antibiotics on beef cattle have indicated that "Aureomycin (chlortetracycline) and Terramycin (oxytetracycline) are the most effective antibiotics for improving the performance of beef cattle."

He noted that the response to antibiotics varies with the energy level of the ration, feedlot conditions and disease level of the cattle. "Under certain feeding conditions," he said, "especially on high roughage diets, the oral feeding of 70-80 mg. of either Aureomycin or Terramycin will increase gain, feed efficiency, carcass quality and health of cattle.

"On an average, antibiotic will improve gain and feed efficiency 4% on fattening rations and about 8% on growing rations."

When antibiotics are fed alone, according to Dr. Beeson, there is no change in carcass quality. "But, antibiotics definitely improve carcass grade when fed with stilbestrol," he said.

Dr. Beeson reported that the narrow spectrum antibiotics, such as penicillin and bacitracin, "have not been beneficial in stimulating gain or saving feed for beef cattle." He noted, however, that mixtures of equal parts of broad and narrow spectrum antibiotics have given essentially the same results as a single broad spectrum antibiotic such as Aureomycin.

"Some response has been obtained with zinc bacitracin," he said. "Preliminary research on the use of ilotycin and erythromycin in rations for calves has shown only a slight beneficial effect."

A recent report from the University of Kentucky, cited by Dr. Beeson, showed that a combination of Terramycin and stilbestrol implant is superior to stilbestrol alone for steers grazing on pasture.

The effective use of antibiotics at high levels (350-550 mg. per head daily) to control shipping fever was mentioned by Dr. Beeson.

Dynafac—Dr. Beeson said it appears at present that "under certain feeding conditions in the West, dynafac (a mixture of 20% tetra alkylammonium stearate and 80% bonemeal) is helpful as a feed additive for fattening cattle, but in midwestern feedlots, the research results have been negative."

He reported that at the Montana and Washington stations, growth rate and feed efficiency were improved by feeding Dynafac. "However, under midwestern feeding conditions in Illinois, Indiana and Iowa," Dr. Beeson said, "the feeding of 1 or 2 gm. daily to steers or heifers either in the presence or absence of stilbestrol has failed to give any significant effect on daily gain, feed efficiency or carcass quality."

Ethanol (ethyl alcohol)—"Since the effect of ethanol upon urea utilization has been variable, additional experiments need to be conducted to clarify its place in cattle rations," Dr. Beeson said.

He sketched the following test results which have been obtained since a report in 1956 that a mixture of molasses, urea, minerals, ethanol and vitamins made an effective supplement for balancing the rations of beef cattle and stimulated research to measure the effect of ethanol upon urea utilization:

Cornell University: In a nitrogen balance study ethanol increased the retention and biological value of nitrogen of a ration containing poor grass hay, molasses, urea and minerals to about the same extent as an iso-caloric amount of starch.

Kansas: Research with beef heifers indicated that feeding ethanol in conjunction with a molasses-urea mixture did not improve gain, feed efficiency or carcass quality.

Kentucky: Dairy heifers gained .8 lb. daily on a ration of corn cobs fortified with a supplement of molasses, urea and minerals and .73 lb. daily when 6% of ethanol was added to the mixture.

Iowa: In four comparisons, adding 3 oz. of ethyl alcohol per steer daily to a fattening ration of ground ear corn and supplement resulted in a slight increase in daily gain and a 3% improvement in feed efficiency.

Louisiana: Report indicated that ethanol will improve nutritional value of molasses-urea liquid supplement when used to balance a low protein-low starch ration consisting of cottonseed hulls.

Tranquilizers—Dr. Beeson believes tranquilizers have their greatest potential value as therapeutic injections to reduce stress periods in animal life such as: (1) Reduction in shipping shrink, (2) elimination of shock of weaning calves, (3) relieving tension and anxiety during certain operations such as dehorning, clipping, castrating, branding, etc., and (4) to pacify nervous animals at parturition.

A review of 80 experiments on tranquilizers as growth stimulants indicates a variety of results, he said, "but a majority of the tests shows very little if any effect on improving gains or feed efficiency." Tranquilizers tested include hydroxyzine, reserpine, rauwolfia and trifluomeprazine.

"In some of the earlier experiments, feeding 2.5 mg. of hydroxyzine daily to steers in combination with Terramycin and stilbestrol gave a significant improvement in liveweight gain and feed conversion. However, later research has failed to confirm these initial findings," Dr. Beeson said.

Live Rumen Cultures—Research data reported to date, Dr. Beeson said, has indicated that the supplementation of a ration with dried rumen concentrates (4 billion live cells per gram) "will not improve gain, feed efficiency or digestibility of nutrients for beef cattle."

BUFFALO EXCHANGE ELECTS DIRECTORS

BUFFALO — Three directors were elected by the Corn Exchange of Buffalo April 25 to serve three-year terms. They are Charles R. Coad, grain buyer, General Mills, Inc.; William L. Rogers, Jr., vice president, Standard Milling Co., and manager of its Standard Elevator & Grain Division, and John H. Young, general manager, milling division, Eastern States Farmers Exchange, Inc. The directors will elect officers May 2.

Dairy Supports Set

WINNIPEG — The present price support levels for the dairy industry in Canada will be continued from May 1, of this year, until April 30, 1961, according to Agriculture Minister Douglas Harkness. In addition, the department of agriculture in Canada will promote an advertising campaign to stimulate consumption of butter.

During the past two years, said Mr. Harkness, there has been a steady decline in butter consumption in both total quantity and per capita.

The price support for butter during the next year will be 64¢ lb. for Canada First Grade creamery butter scoring 40 to 93, basis delivery Montreal, with appropriate price differentials for other grades and qualities.

In addition, 25¢ per 100 lb. will continue to be paid for whole milk delivered for manufacturing purposes, exclusive of milk from producers who sell a portion of their milk in the fluid bottled milk market.

FORM FEEDER PIG ASSN.

MONTGOMERY, ALA. — Quality Feeder Pig Assn. has been organized in Granville County with F. E. White, Jr., Berea, as president. Improvement of marketing conditions will be the first goal of the association.

Harry A. Scott Retires At Ralston Purina

ST. LOUIS—Harry A. Scott, director of sales for Ralston Purina's International Division, has announced his retirement, effective April 30, following nearly 37 years service with the company.

H. A. Scott

Mr. Scott was born May 4, 1895 at Jackson, Michigan. He joined Ralston Purina as a salesman in June, 1923. In 1946, he became sales manager of the export division. In 1957, this division became the international division and he was named sales manager. Since August, 1958, he has been director of sales for the international division.

Spring Party Set by Columbus Feed Club

COLUMBUS, OHIO—The 14th annual spring party of the Columbus Feed Club has been set for May 6 at the Lincoln Lodge.

The party will start at 6:30 p.m. with refreshments with a special smorgasbord dinner at 7:30 p.m. There will be door and other prizes. Corsages will be provided for the ladies and bingo will be played. There also will be a special entertainment feature.

Secretary Resigns

STOCKTON, CAL. — At a regular meeting, the board of directors of the Stockton Grain Exchange accepted the resignation of Edwin Kauppila as secretary-manager.

Mr. Kauppila informed the board of his intentions to enter the grain business, but said he would stay on temporarily until a new manager could be found.

MERCK

(Continued from page 7)

pare a feed supplement of standardized activity;

(2) "Is stable under normal storage conditions, relatively non-dusty; it does not segregate, and remains free-flowing even at high humidity;

(3) "Has a slight fermentation-type odor;

(4) "Used at a level of .0075 lb. per steer per day, it improves the efficiency of corn fattening feeds for cattle;

(5) "Appears to be compatible with vitamin-mineral-antibiotic conditions used in cattle rations."

Merck officials reported results of Iowa State University and other tests which indicated that "Agrozyme" increased live weight beef cattle gains an average of 12%, increased margins over feed costs and produced other feed savings.

Sheep Research

Since Merck's announcement of early beef cattle test results at Iowa State, the company has expanded its research to include sheep in trials with "Agrozyme." Officials say the sheep trial results have been promising and research in this area will be intensified.

In addition to growth-promotion tests in primary cattle feeding areas nationwide, Merck is continuing its research and marketing program in the application of "Agrozyme" to upgrade the feed value of barley grown in 11 northwestern states for poultry use.

Further research may disclose if "Agrozyme" is beneficial where barley, sorghum or other cereal grains are used in cattle fattening rations and in rations that are largely roughage with little or no grain, it was reported.

MARKETS

(Continued from page 2)

buying from country retail feed stores.

Price levels have eased off to some degree as a reflection of the further selloff on some of the ingredients, particularly bran and middlings and to a more limited degree on soybean oilmeal.

South Central

Formula feed sales and operations dropped to a lower level this week. The slackening demand was again blamed on the rush to get spring field work out of the way, but falling prices also were looked upon as a factor in the reduced buying. Usually dealers are not inclined to stock up while feed ingredients are in a slump. Only rarely was mill running time up to five full days. Most plants operated less than 40 hours.

Sales generally are running behind those of a month ago and also April of last year. Pig and hog feed sales hold up very well and little complaint is heard on these items. Poultry feed sales, however, reflect the reduced layer flocks on farms and the slow start of the chick season. Dairy feed sales are holding up better than expected due to the late pastures.

Ohio Valley

Searing mid-summer temperatures that broke all previous weather bureau records blanketed the Ohio Valley during the last week, enabling farmers to catch up considerably on their backlogs of plowing and planting.

While the hot weather induced the rapid growth of pasturage and meadow crops, this growth, as well as the germination of field seed crops, was being retarded by the lack of rainfall, with the scattered showers bringing no real relief.

Feed manufacturers report that business is continuing in the doldrums, with the bottom having dropped out of the demand for hog feeds, and only slight interest being evidenced by farmers in purchases of other types of feeds.

While it is being nationally predicted that egg prices will stiffen during coming months, directly the opposite situation prevailed in the Ohio Valley during the last week, when egg prices recorded a drastic drop of as much as 3¢ doz. for jumbos, and nearly as much for smaller sizes. Considerable loss-leader sales were reported in efforts to improve the movement of both eggs and poultry.

Pacific Northwest

There was good demand for formula feeds throughout Oregon, Washington and Idaho this week, with poultry feeds showing an increase in the face of a good hatch of chicks for the area.

However, pastures have improved during the past two weeks, but heavy rain in some areas made the ground too soft for grazing and stimulated the use of formula feeds.

Majority of the feed prices held steady and unchanged, with prices generally above those for the same 1959 period.

The Pacific Northwest alfalfa hay market carried a weak undertone, but prices managed to hold unchanged, with a going range of $35@38 ton being quoted at Seattle and Portland for No. 2 green alfalfa, baled and delivered to the feeding districts of those areas.

Mountain States

Feed business for April this year will be ahead of April, 1959, but substantially below March of this year. The delayed spring and then the clear weather in the last half of April caused farmers to concentrate on field work with a resultant drop in retail feed sales.

Cattle numbers are on the increase with an increase in cattle feed supplement sales resulting. The number of cattle in feedlots, however, declined in the past week.

Poultry feed has shown a marked decline during April, with chick starter and grower feeds showing the greatest drop. Both broiler chicks and laying type chicks have declined since last year. Turkey feed sales have increased in the past week.

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J. F. Cavanaugh Dies

KANSAS CITY — John Francis Cavanaugh, 65, former vice president and sales manager of the industrial chemicals division, Thompson - Hayward Chemical Co., Kansas City, died April 22 at Phoenix, Ariz.

Mr. Cavanaugh, who retired about three months ago, apparently suffered a heart attack. He was with the Thompson-Hayward firm for 38 years in various sales capacities, and was well-known in the feed industry in this area.

Arkansas Co-op Plans Bean Processing Plant

STUTTGART, ARK.—The Arkansas Grain Cooperative has announced plans to open a new $2 million soybean processing plant here in October.

The new plant, to be operated 330 days each year, will have facilities to handle about 640 tons of beans daily.

The soybean meal not sold for use in Arkansas will be shipped to other livestock and poultry-producing sections.

L. C. Carter, an official of the Arkansas Grain Cooperative said, "A recent survey showed that 85% of the grain used in 55 Arkansas feed mills was being shipped in from other states.

"Our farmers have an efficiency record in the production of cotton, rice, and soybeans that cannot be matched by most farmers in the country. I'm sure that if farmers have a ready market for their wheat, corn and sorghum grain, they will go into that business, too."

Mr. Carter estimated that approximately half of the livestock and poultry feed used in Arkansas is imported.

The new plant is to be financed by farmer-members of the cooperative. When it's completed, the organization will have an estimated $10 million invested in the soybean industry in Arkansas.

Suffers Heart Attack

KANSAS CITY — John H. Alley, president of the Alley-Johnson Co., Kansas City, wholesale feed distributors, and president of the People's Bank of Mercer, Mo., suffered a heart attack April 15 at his home in Mission, Kansas. Mr. Alley, who is 75, is in St. Luke's Hospital, Kansas City, and is reported to be making a satisfactory recovery. He is the father of Dale Alley, of the Alley Grain Co., St. Joseph, Mo., feed firm.

TO FORM FEED FIRM

GREGORY, S.D.—Pellets, Inc., has filed articles of incorporation to operate a livestock feed processing firm here, listing $95,000 capitalization and George F. Dooley, Jr., Donald J. Dooley and Cecil D. Johnson, all of Gregory, as directors.

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Percent of Vitamin A remaining after 3 months	98.6	97.8	95.4	98.6	95.6	95.4

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